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DISEASES CAUSED BY BACTERIA AND FUNGI

BEGANOVIĆ, H. A. (1953). Svojstva mikrokoka uzročnika gangrenoznog mastitisa ovaca i koza u Hrvatskoj. **[The causal agent of gangrenous mastitis of sheep and goats in Croatia.]**—*Veterinaria, Sarajevo.* **2,** 696-711. [In Croat. Abst. from English summary.] **3726**

An account of gangrenous mastitis in sheep and goats caused by *Staphylococcus aureus,* with considerable detail of the characteristics of the organism.—R.M.

LOWBURY, E. J. L. & HOOD, A. M. (1953). **The acquired resistance of *Staphylococcus aureus* to bacteriophage.**—*J. gen. Microbiol.* **9,** 524-535. **3727**

When 20 phages were grown in solid and fluid media with their respective propagating strains of *Staph. aureus,* resistant secondary growth appeared most commonly in staphylococci of the 6/47 group and failed to appear in the 3A group. Failure to absorb phage was not correlated with resistance. Cross resistance, mainly to closely related phages, was common. The authors discussed these findings in relation to phage typing and to the possibilities of using phages for therapy or prophylaxis.

—A. SEAMAN.

HELMBOLDT, C. F., MOCHRIE, R. D., PLASTRIDGE, W. N., EATON, H. D., EASTERBROOKS, H. L. & HALE, H. H. (1954). **Effects of abnormal machine milking on the histopathology of udders of first-calf heifers free of mastitis.** —*Amer. J. vet. Res.* **15,** 15-21. [Abst. from authors' summary.] **3728**

Eleven first-calf heifers were considered to be mastitis-free after tests twice a week for a 30-day post-partum period, comprising leucocyte count, pH and chloride value, and bacteriological examination of the milk. The animals were then divided at random into three groups, which were milked by machines respectively at 10, 13, and 17 in. of vacuum. One half of each udder was randomly given a normal duration of milking and the other half twice the normal duration. At slaughter 305 days *post partum,* examination of the udders revealed lesions of focal acute mastitis and inflammation of the teats, unrelated to the vacuum of milking machine or duration of milking. The acute foci of mastitis did not appear to result in fibrosis but rather in involution of the involved areas; this was considered to be a defence mechanism.

DOYLE, L. P. (1954). **Field trials with streptomycin for swine dysentery.**—*J. Amer. vet. med. Ass.* **124,** 195-197. **3729**

An account of field trials with streptomycin on some 2,790 pigs in 11 herds affected with swine dysentery, which is believed to be a vibrio infection. The drug was most effective when given in the drinking water, the average dosage being 0·7 g. per pig per day, for two days. Where infection recurred after treatment, further treatment was usually successful. The drug had some prophylactic value.

—F.E.W.

JANJATOVIĆ, M. (1953). Alimentarna enzootija antraksa među svinjama na 1200 *m* nadmorske visine. **[Anthrax in pigs following ingestion of infected meat.]**—*Veterinaria, Sarajevo.* **2,** 729-731. [In Croat. Abst. from English summary.] **3730**

A herd of 280 pigs was fed by mistake uncooked meat from an ox which had died from anthrax; 25 of the pigs developed symptoms of infection, and of these 18 died from anthrax.

—R.M.

HAILER, E. & HEICKEN, K. (1953). Untersuchungen zur Bekämpfung des gewerblichen Milzbrandes. VIII. Versuche zur Sanierung der Gerbereien. **[Investigation into the con-**

trol of industrial anthrax. VIII. Laboratory tests of disinfectants for infected hides and skins.—*Z. Hyg. InfektKr.* **137,** 611-639. **3731**

An account of extensive lab. tests of disinfectants for imported dried cattle hides and sheep and goat skins infected with anthrax spores. It has been found that 90% of the cases of industrial anthrax in Germany result from the handling of imported hides and skins. Treatment with 0·1–0·2% chlorine solutions at 20°, 12° or 4°C. was effective in 12–24 hours if the chlorine content of the soln. used was replenished every 3–4 hours during the first 12 hours. For sheep and goat skins (but not for cattle hides) chloride of lime and sodium hypochlorite solns. with a 0·1% content of active chlorine were effective disinfectants if the solns. were renewed every 3 hours during the 12-hour treatment. Preliminary tests with sheep skins and goat skins using lower concentrations of chlorine revealed no detrimental effect on the substance of the skins and tests are to be carried out under tannery conditions.

The other chemicals tested gave a very variable disinfection time.—F.E.W.

MEZDRIN, M. D. (1954). **[Diagnosis of TB. in goats.]**—*Veterinariya, Moscow.* **31,** No. 2. pp. 17-18. [In Russian.] **3732**

Four goats were kept for two years in an isolation unit with tuberculous cattle. When examined P.M., lesions of TB. were present in abdominal lymph nodes of two of the goats, one had a lesion of the liver together with lesions of the lymph nodes of the liver. The remaining goat was free from lesions.

—A. MAYR-HARTING.

KISELEV, V. S. (1954). **[Control of TB. in cattle in the U.S.S.R.]**—*Veterinariya, Moscow.* **31,** No. 2. pp. 14-17. [In Russian.] **3733**

A conventional note on the control of TB. of cattle by the use of the tuberculin test together with the usual sanitary methods and the removal of reactors.—A. MAYR-HARTING.

FISHBEIN, V. Y. & GOROSHNIKOVA, V. G. (1954). **[The role of the repeated tuberculin test in freeing poultry farms from TB.]**—*Veterinariya, Moscow.* **31,** No. 3. pp. 52-53. [In Russian.] **3734**

The authors stated that one intradermal tuberculin test does not discover all tuberculous birds on a poultry farm. Recently infected birds may not react, but will be found at a subsequent test. As the *post mortem* examination of birds, discovered only by this repeat test, showed, they are either more heavily affected than the birds with a readier allergic response, discovered by the first test, or else the infectious process is at its beginning.

—A. MAYR-HARTING.

SHCHEPILOV, N. S. (1954). **[Culture of avian type tubercle bacilli from hens' eggs.]**—*Veterinariya, Moscow.* **31,** No. 2. pp. 18-21. [In Russian.] **3735**

Avian type *M. tuberculosis* was isolated from the eggs of fowls positive to the tuberculin test.—A. MAYR-HARTING.

JØRGENSEN, J. B. & RINGSTED, J. (1953). **Inoculation of tubercle bacilli into cortisone treated guinea pigs. An attempt at improving the routine diagnosis of tuberculosis.**—*Acta path. microbiol. scand.* **32,** 465-467. [In English.] **3736**

Four weeks after inoculation with a coarse filtrate of tubercle bacilli, positive takes were seen in four out of ten g. pigs that had been treated with cortisone (cortone) as compared with none among the controls that had received no cortisone. At two weeks no positive takes were seen in either group.—D. LUKE.

FRICK, E. & LAMP'L, F. (1953). Experimentelle Untersuchungen über eine Tuberkulin-Allergische Reaktion des Zentralnervensystems. **[An allergic reaction of the central nervous system to tuberculin.]** — *Z. Hyg. InfektKr.* **137,** 130-144. **3737**

Sensitized g. pigs exhibit no central nervous anaphylactic symptoms after intracerebral injection of human serum. In g. pigs allergic to tuberculin or sensitized to human serum plus killed tubercle bacilli, an inj. of the sensitizing agent intracerebrally is followed by a severe neurological reaction after an interval of 6–8 hours and with a suitable dosage, death within 24 hours. The lesions resemble those in the Arthus phenomenon.—R. B. HOLCOMBE.

KOURILSKY, R. & DECROIX, G. (1951). Sur un transfert local de l'allergie tuberculinique. **[Local transfer of tuberculin allergy.]**—*C. R. Acad. Sci., Paris.* **233,** 1237-1238. **3738**

Tests on 100 guinea pigs revealed that those which were non-reactors to the tuberculin test gave a marked positive skin reaction 24–48 hours after an i/d inj. with a mixture of tuberculin and crushed lymph nodes from allergic g. pigs. The reaction usually persisted for 4–5 days. It was histologically indentical with a tuberculin reaction.—G. V. LAUGIER.

LINZ, R. & LECOCQ, E. (1953). Sur le mécanisme de l'action de la streptomycine. IV.—La résistance de *Mycobacterium tuberculosis.*

[Mode of action of streptomycin.] — *Ann. Inst. Pasteur.* **85,** 451-462. **3739**

The authors found that *M. tuberculosis* occasionally developed resistance to streptomycin *in vitro* in the absence of leucocytes, but never when they were present in the medium, and that Welsch's phenomenon is demonstrable with *M. tuberculosis* (Welsch found that when streptomycin-sensitive and streptomycin-resistant strains of *Staph. aureus* were grown together in the absence of the antibiotic the resistant strain decreased in numbers in successive passages until finally it formed a minute but stable proportion of the population). They concluded that the sensitivity of *M. tuberculosis* is much greater than that of organisms of rapid growth. They discussed the persistence of sensitive organisms in patients under prolonged treatment.—G. V. LAUGIER.

HAUDUROY, P. (1954). La virulence des mycobactéries. **[The virulence of mycobacteria.]** —*Rev. Immunol.* **18,** 62-86. **3740**

H. examined the meanings of the terms "pathogenic" and "virulent", and discussed in detail the present position of research on mycobacteria.—A.S.

VIALLIER, J. & TIGAUD, J. (1953). La réaction de Dubos et Middlebrook, test cytochimique de la virulence des mycobactéries. **[A staining reaction for differentiation of virulent and avirulent mycobacteria.]** — *Ann. Inst. Pasteur.* **85,** 746-756. **3741**

The authors described a modification of the Dubos-Middlebrook technique involving the use of spectroscopy. They demonstrated that, with some exceptions, the affinity of organisms for neutral red can be correlated with virulence. They consider this phenomenon to be an oxidation-reduction reaction linked with virulence by a specific chemical.—G. V. LAUGIER.

KROHN, E. F. (1952). **Laboratory control of B.C.G. vaccine. With special reference to the value of some current methods of examination.**—*Acta tuberc. scand.* Suppl. No. 30. pp. 181. [In English.] **3742**

K. described in detail the method of preparing B.C.G. employed at the Norwegian B.C.G. Laboratory, Bergen. Despite approx. constant growth conditions, cultures on Sauton medium show variations in colour, consistency, and tendency to sink. He described a method of counting the relative frequency of single organisms in the vaccine and the total number of acid-fast particles of the bacilli produced by the grinding of the suspension and discussed the errors of the method. K. recommended a photometric examination of the vaccine. He described the method of counting the number of viable bacillary particles. On an average only 10·2% of the intact, acid-fast bacillary particles were found viable. The viable particle content is reduced by storage, the most rapid reduction occurring during the first few days. K. suggested a modification of the original procedure described by K. A. Jensen (1946) of testing B.C.G. vaccine by its local effects on g. pigs, since the local reactions to suspensions of one and the same culture vary with the intensity of the grinding. No connexion exists between the effects of B.C.G. vaccine on human beings and its content of viable bacillary particles. The most important cause of the variations in the effects are qualitative differences, which cannot be demonstrated by ordinary laboratory methods but require the use of tests in laboratory animals.

—W. R. BETT.

DOUGHERTY, E. & BRUNER, D. W. (1954). **Two cases of erysipelas in the White Pekin duck.** —*Cornell Vet.* **44,** 209-211. **3743**

The authors reported the isolation of *Erysipelothrix rhusiopathiae* from ducks on Long Island, an area maintaining a large duck population. There had been some 30 deaths in a flock of 1,200. This infection had not previously been reported from ducks in this area; the authors suggested that it might assume an important role in time and that, when necessary, future examination of diseased ducks should include bacteriological examination for this organism.—F.E.W.

GEURDEN, L. & DEVOS, A. (1954). Listerellose bij rundvee. **[*Erysipelothrix* (*Listeria*) *monocytogenes* infection in cattle.]**—*Vlaam. Diergeneesk. Tijdschr.* **23,** 57-66. [English, French and German summaries.] **3744**

The authors isolated *E. monocytogenes* from the brain of a 6 - month - old calf. Attempts to infect rabbits by instillation of cultures of this strain and of other strains of the organism *via* the intact conjunctiva failed, but a purulent discharge developed after instillation *via* the scarified conjunctiva.

—C. A. VAN DORSSEN.

SEN GUPTA, K. C. & VERMA, N. S. (1951). **Pasteurellosis in swine.**—*Indian J. vet. Sci.* **21,** 197-199. **3745**

An account of an outbreak of pasteurella infection with 29 deaths in a herd of 156 pigs;

it was controlled following administration of antiserum and provision of improved housing.
—M. M. SINGH.

NOVIKOV, A. P. (1954). **[Migrating rooks as carriers of fowl cholera.]**—*Veterinariya, Moscow.* **31,** No. 4. p. 27. [In Russian] **3746**

Rooks settled in the trees of a farm near the fowl houses and later developed fowl cholera with considerable mortality, and this spread to fowls, ducks and geese.
—A. MAYR-HARTING.

I. DIENES, L. (1953). **Some new observations on L forms of bacteria.**—*J. Bact.* **66,** 274-279. **3747**

II. DIENES, L. (1953). **Electron micrographs made from L forms of *Proteus* and two human strains of pleuropneumonia-like organisms.**—*Ibid.* 280-286. **3748**

I & II. Surface growth of some L forms in liquid media, as described by Tulasne [*V.B.* **20,** 887], and floating transfer growths were obtained from 2 out of 17 strains of proteus. The morphology of the different L type cultures was similar, but they differed in their nutritional requirements, rate of growth, serological properties, and in their tendency to resume bacterial forms. D. described an organism, isolated from sputum, which grew like a small bacillus, or an actinomycete, or in L form. Electron micrographs of this organism and of the L forms of proteus revealed elements similar to those visible with the light microscope except that smaller granules could be seen in the proteus L forms.—A. ACKROYD.

BERGERSEN, F. J. (1953). **Cytological changes induced in *Bacterium coli* by chloramphenicol.**—*J. gen. Microbiol.* **9,** 353-356. **3749**

Treatment of a culture of *Bact. coli* with sub-lethal doses of chloramphenicol for 24 hours produced elongated, pointed and branching forms with abnormal nuclear structures.
—A. SEAMAN.

DÉOM, J. & MORTELMANS, J. (1954). Considérations sur le rôle pathogène de *Salmonella typhi-murium* chez le mouton au Congo belge. **[*Salmonella typhi-murium* infection of sheep in the Belgian Congo.]**—*Bull. agric. Congo belge.* **45,** 426-430. [In French. English and Flemish summaries.] **3750**

The authors reported *S. typhi-murium* infection in sheep for the first time in the Belgian Congo. The infection was latent, but became apparent in several sheep after they had been injected intracerebrally with fixed rabies virus for the purpose of preparing vaccine.—A.S.

SMITH, H. W. (1954). **The use of furazolidone in the treatment of experimental fowl typhoid.**—*Vet. Rec.* **66,** 215. **3751**

N-(5-nitro-2-furfurylidene)-3-amino-2-oxyazolidone, mixed in a commercial mash to give a 0·02% conc. was fed *ad lib.* for 6–12 days to 90 cockerels, from 2–4 days after infection with *Salmonella gallinarum.* Only one out of 88 which survived developed agglutinins to *S. gallinarum* and this was the only bird excreting the organism when the faeces were tested on the 17th and 24th days after infection. Seventy per cent. of the untreated controls died and all the survivors were excreting the organism.—A. ACKROYD.

WIŚNIOWSKI, J., KOCOWICZ, I. & KAMIŃSKA, M. (1954). Płtowy odczyn zlepny przy brucelozie bydła. **[A rapid plate-agglutination test for *Brucella* infection in cattle.]**—*Méd. vét., Varsovie.* **10,** 5-8 & 56-59. [English and Russian summaries.] **3752**

An account of a plate agglutination test, using a temp. of 37°C. and an exposure of 20–30 min.—J. R. MITCHELL.

RUIZ CASTANEDA, M. (1953). **Surface fixation as a practical method for diagnosis of brucellosis in man and animals.**—*Proc. Soc. exp. Biol., N.Y.* **83,** 36-39. [Author's summary slightly modified.] **3753**

Attempts have been made to standardize the paper "surface fixation" test [*V.B.* **24,** 3070] for the diagnosis of brucellosis and at the same time make it a practical rapid and dependable procedure. So far, it has been found to possess remarkable specificity in human brucellosis as judged by comparison with the results of blood cultures. This test may be applicable to the detection of bovine reactors.

SPINK, W. W. (1954). **Family studies on brucellosis.**—*Amer. J. med. Sci.* **227,** 128-133. **3754**

In the U.S.A. *Br. abortus* causes three-quarters of the brucella infections in human beings and *Br. suis* causes more human disease than *Br. melitensis.* Of 119 culturally proved cases which S. studied from 1937–53, 102 were due to *Br. abortus,* 12 to *Br. suis* and 5 to *Br. melitensis*; another 85 cases were proved serologically but were culturally negative. This study emphasized the importance of contact with infected animals in the acquisition of the disease, compared with the drinking of contaminated milk. Most people tolerate exposure to small numbers of *Br. abortus* without ill effects.—W. R. BETT.

RIKARD-BOLL, L. F. (1954). **Vibriosis in dairy cattle in south west Western Australia.**—*Aust. vet. J.* **30,** 41-51. Discussion pp. 51-52. **3755**

Infection with *V. fetus* was detected in a dairy herd after the introduction of a bull. Many of the cows failed to conceive and showed irregular oestrus after service by this bull. Thirteen other herds in the same area were found to be infected. Although abortion occurred the chief manifestation was herd infertility. Observations made on treatment were inconclusive.—D. C. BLOOD.

LUKAČEVIĆ, J. (1953). Raširenost i kretanje šuštavca goveda u Bosni i Hercegovini i usporedba s kretanjem bedrenice. [**Incidence of blackleg and anthrax in cattle in Bosnia and Hercegovina.**] — *Veterinaria, Sarajevo.* **2,** 682-686. [In Croat. Abst. from English summary.] **3756**

There was no relationship in the seasonal incidence and geographical distribution of anthrax and blackleg in the People's Republic of Bosnia-Hercegovina, Yugoslavia.—R.M.

HEIKKILÄ, I. & ÖZKAL, I. (1953). Zur Ätiologie der ansteckenden Lungen-Brustfellentzündung der Ziegen (Pleuropneumonia contagiosa capri). [**Aetiology of caprine contagious pleuro-pneumonia.**]—*Wien. tierärztl. Mschr.* **40,** 402-413. [English, French and Italian summaries.] **3757**

The authors described in detail and with diagrams the pleomorphic pleuropneumonia-like organisms which have been proved to be the cause of caprine contagious pleuropneumonia. These organisms were isolated from affected organs. On nutrient horse serum agar they formed variously shaped colonies—the most characteristic being cone shaped. Animals which survive retain a certain degree of immunity. The organisms lose their virulence upon repeated passage on artificial culture. The authors suggested that this may form a basis for active immunization in preference to the older organ vaccines.—W. G. SILLER.

SYNGE, R. L. M. (1953). **Note on the occurrence of diaminopimelic acid in some intestinal micro-organisms from farm animals.**—*J. gen. Microbiol.* **9,** 407-409. **3758**

S. determined by means of paper chromatography the diaminopimelic acid content of *Clostridium butyricum* from the caecum of a pig and the rumen of sheep, and of *Cl. welchii* and *Ruminococcus faecalis* from the rumen of sheep. This substance was not present in *Streptococcus faecalis* nor in an amylolytic streptococcus, both from the rumen of sheep. —R.M.

PRIER, J. E. (1954). **Studies on toxic factors produced by rumen microorganisms of sheep.**—*Amer. J. vet. Res.* **15,** 51-54. [Author's summary modified.] **3759**

An account of studies on toxic factors produced by two species of rumen bacteria from sheep; [see also *V.B.* **24,** 2479]. One factor caused a marked depression of blood pressure in experimental dogs and sheep and the other produced a rise in blood pressure. The role of these factors in naturally occurring rumen dysfunctions is not known.

WIGAND, R. & PETERS, D. (1953). Blutparasiten der weissen Maus. II. Zur Kenntnis des Bartonella muris musculi Schilling. [**Blood parasites of the white mouse. II.** *Bartonella muris musculi.*]—*Z. Tropenmed. u. Parasit.* **4,** 1-10. [English abst.] **3760**

The authors confirmed that *B. muris musculi* and *B. muris* of rats are not of the same species. The former occurs as rods and in coccoid and diploid forms. Particles were either attached to r.b.c. or dispersed in the plasma fluid. They were demonstrable in unstained and in haemolysed smears by phase-contrast and by electron microscopy, and by the pseudo-replica technique using the latter method. Unlike *B. muris,* the parasite was flat, often disc-like and of granular structure, less opaque and of smaller av. size (336 ± 52 mμ). No evidence of a membrane was discernible. The incubation period in mice was 3–14 days after splenectomy. Infection persisted for 2–8 days with occasional relapses. It was not transmissible to rats. The presence of *Eperythrozoon* often inhibited infection. *B. muris musculi* may cause latent infection in mice.—F.E.W.

See also absts. **3950-3951** (reports, Australia); **3953** (report, Belgium); **3957** (report, Sudan); **3958** (report, U.S.A.); **3959** (book, microbiology); **3960** (book, bacteriostatic activity of some organic compounds for *Mycobact. tuberculosis*).

DISEASES CAUSED BY PROTOZOAN PARASITES

KALTENBACH, A. (1954). Das Leukozytenbild bei natürlicher und experimenteller Surra-Infektion. (Ergebnisse der österreichischen Iran-expedition 1949/50.) [**The leucocyte picture in natural and experimental surra.**]—*Z. Tropenmed. u. Parasit.* **5,** 96-108. [Abst. from

English abst.] 3761

K. studied the haematology of animals infected with *Trypanosoma evansi* to obtain data on the defensive reaction of the host, the virulence of trypanosomes, and the effect of therapy. Eighteen Persian camels and a horse were examined; 2 rabbits and 19 white mice were experimentally infected and studied for cytological changes and organ pathology. In natural chronic infections the degree of regenerative leucocytosis and the number of large lymphocytes ran parallel to the number of circulating trypanosomes while monocytosis was constant. A chronic course of infection in rabbits was marked by regenerative leucocytosis; leucopenia was demonstrable P.M. In rats, the infection was acute and characterized first by an increase of neutrophiles, later by regenerative leucocytosis and a final lymphocytosis. Treatment with suramin (naganol) did not change the leucocyte picture and led to an increase of erythrocytes. Toxic granulation of neutrophile leucocytes was observed in all the infected rats, and phagocytosis of erythrocytes by lymphocytoid cells was observed twice in the peripheral blood.

WAGNER, W. H., PEDAL, H. W. & SCHÖNEBERGER, A. (1954). Untersuchungen über das Wesen der erworbenen Resistenz von Trypanosomen gegenüber Phenylarsenoxyden. **[Acquired resistance of trypanosomes to phenylarsenoxides.]**—*Z. Tropenmed. u. Parasit.* **5**, 81-96. [English summary modified.] 3762

The effect of various phenylarsenoxides on trypanosome strains of varying acquired resistance against arsenic compounds was tested by a method previously developed. It was shown that the resistance is effective against either acid or alkaline substances and not against electrically neutral phenylarsenoxides. When the absorption of therapeutically indifferent dyestuffs of acid or basic character was tested, acid dyes were found to be more than normally absorbed by trypanosomes resistant to basic phenylarsenoxides and *vice versa*. These findings suggest that the molecular charges of a chemical agent on the one hand and of the parasite surface on the other may be responsible for the effectiveness or ineffectiveness of chemotherapeutic compounds against trypanosomes.

MENOLASINO, N. J. & HARTMAN, E. (1954). **Immunology and serology of some parasitic protozoan flagellates. II. The hemoflagellate protozoa, *Leishmania donovani* and *Trypanosoma cruzi*.**—*J. Protozool.* **1**, 111-113. [Authors' summary slightly modified.] 3763

Antigens consisting of simple fractions of *T. cruzi* and *L. donovani* produced high titre antisera in the rabbit after a short series of injections. The antisera resulting from these immunizations showed several types of serological reactions with the living antigens when the dark-field serial dilution technique, devised for these experiments, was employed.

MOHIUDDIN, A. (1952). **An investigation into the relationships between the species (parasitic in man) of the genus *Leishmania* Ross, 1903. II. The serological relationship and pathogenicity of the various species.**—*Indian J. med. Res.* **40**, 171-192. [For part I, see *V.B.* **23**, 2502.] 3764

A discussion on methods of grouping species of *Leishmania*.—K. C. SINHA.

SCHNEIDAWIND, H. (1953). Prädisponierende Faktoren bei der Trichomonadenseuche des Rindes, unter besonderer Berücksichtigung von Boden, Fütterung und Haltung (im Landkreis Dachau/Obb). **[Predisposing factors in bovine trichomoniasis, particularly soil, feeding and housing.]**—*Inaug. Diss., Munich.* pp. 88. 3765

Observations were made on 12 farms comprising 235 female cattle and 9 bulls with respect to general maintenance, soil composition, feeding and housing conditions. No direct predisposing factor was found between trichomoniasis and the nature of the soil. But a marked phosphorus deficiency as well as an unequal base : phosphoric acid ratio appeared to coexist with extensive outbreaks. The trace elements seem to have no connexion, with the possible exception of iodine, and the importance of vitamins A and D has yet to be shown.

—M. L. CLARKE.

BULGAKOV, N. M. (1954). **[Treatment of *Trichomonas* infection of cows with collargol.]**—*Veterinariya, Moscow.* **31**, No. 2. pp. 25-26. [In Russian.] 3766

Collargol [a silver preparation] 1 : 1,000 in watery solution, when applied to the uterus and vagina daily for about a fortnight, completely cures *Trichomonas* infections in cows, without harming the animals locally or systemically. If, in cases of pyometra, the lumen of the cervix uteri is closed, synoestrol [an oestrogen preparation] injected subcutaneously will dilate it within two days sufficiently to pass a 10 mm. tube.

—A. MAYR-HARTING.

DIAMOND, L. S. (1954). **A comparative study of 28 culture media for *Trichomonas gallinae*.** —*Exp. Parasit.* **3**, 251-258. [Author's summary modified.] **3767**

D. studied the ability of 28 different culture media to support growth of *Tr. gallinae* with their normally associated bacteria. A standard inoculum of 50 protozoa was used, and the cultures were incubated at 35°C. Based upon the number of positive cultures obtained, abundance of growth, and number of strains which grew in a given medium, the most satisfactory were Ringer-Loeffler serum, saline-Loeffler serum, and saline-serum.

Pigeon serum used alone in a simple saline solution produced abundant growth and when added to other nutrients greatly enhanced the medium. Autoclaving of the serum appeared to have no effect on its growth-promoting qualities.

Neither egg yolk nor egg albumen alone appeared capable of supporting appreciable growth of *Tr. gallinae*.

In general, the heavier the bacterial population supported by a medium the poorer the growth of *Tr. gallinae*.

Strains of *Tr. gallinae* differ in their ability to grow in culture. One strain grew in 23 of the media tested, another only in 12.

HARRISON, A. P., JR., HANSEN, P. A., DEVOLT, H. M., HOLST, A. P. & TROMBA, F. G. (1954). **Studies on the pathogenesis of infectious enterohepatitis (blackhead) of turkeys.**—*Poult. Sci.* **33**, 84-93. [Authors' summary modified.] **3768**

Histomonas meleagridis often exists in blackhead liver abscesses in the absence of bacteria. *Bact. coli* was the bacterial contaminant most frequently encountered in liver lesions with the blackhead parasite. In some instances *H. meleagridis* was found free from bacterial contamination in the liver in poults permitted to die from blackhead. The av. bacterial count was significantly lower in poults killed during the course of the disease than in those permitted to die.

Bacterial organisms pathogenic *per se* constituted a minority group among the strains found to be associated in blackhead liver lesions with *H. meleagridis*.

Seitz filtrates prepared from liver lesion tissue failed to produce sickness or lesions when injected into the liver of experimental poults by laparotomy.

BEARUP, A. J. (1954). **The coccidia of carnivores in Sydney.** — *Aust. vet. J.* **30**, 185-186. **3769**

Observations on nine cats and four dogs showed *Isospora felis* and *I. rivolta* to be present. *I. rivolta* and *Eimeria canis* were recovered from one of four *Canis dingo*.

—R. I. SOMMERVILLE.

PELLÉRDY, L. & BABOS, A. (1953). **Experimental treatment of intestinal coccidiosis in rabbits.** — *Acta vet. hung.* **3**, 423-430. [In English. Russian summary.] **3770**

Experimentally infected rabbits were dosed *per os* with nitrofurazone, sulphaquinoxaline or *p*-amino-benzol-sulphamido-methylthiazole ("ultraseptyl"). Others were injected with sulphamethazine or ultraseptyl subcutaneously as oily suspensions. The authors stated that ultraseptyl injected s/c was the most effective.

—E. A. GIBSON.

HÖFER, G. (1953). Die Einwirkung des Emetins auf Eimeria stiedae in der Kaninchenleber. [**Action of emetine on *Eimeria stiedae* in the liver of the rabbit.**]—*Inaug. Diss., Munich.* pp. 51. **3771**

Twelve rabbits with liver coccidiosis were given a course of emetine hydrochloride in doses of 2–7 mg./kg. *per os* and 1–1·5 mg./kg. intravenously or subcutaneously and four died. H. concluded that the drug has no place in the treatment of *E. stiedae* infections.

—M. L. CLARKE.

HOLZ, J. (1954). Über die oberflächliche Struktur der Coccidien-Oocysten. [**The superficial structure of coccidial oocysts.**]—*Tierärztl. Umsch.* **9**, 157-159. **3772**

H. studied the structure of the capsule of coccidial oocysts by electron microscopy. The capsular surface was reinforced by numerous platelets of glycogen, of various shapes and sizes.—A.S.

HERBIG-SANDREUTER, A. (1953). Untersuchungen über den Einfluss des Höhenklimas auf Hühnermalaria (*Plasmodium gallinaceum*, Brumpt). [**Influence of altitude on fowl malaria.**]—*Acta trop., Basle.* **10**, 1-27. [In German. English and French summaries.] **3773**

The author studied the effect of altitude on the course of experimental *Pl. gallinaceum* infection in chicks. He used 135 chicks taken at various times after infection to a research station at 3475 m. above sea level, except for one batch which was allowed to acclimatize before infection. At the same time control observations

were carried out at 318 m. level. It was observed that only those chicks became acclimatized which had been transferred to high altitude at least 3 days before parasitaemia was due. Altitude appeared to enhance host resistance, retard parasitaemia and increase the haemoglobin content of the blood. Transmission experiments with *Aedes aegypti* when carried out at suitable temperature and humidity were successful in spite of altitude.—E.G.

BEHRENS, M. & GEISSLER, H. (1954). Reingewinnung von Toxoplasmen. **[Methods for isolation of pure cultures of *Toxoplasma*.]**—*Z. Hyg. InfektKr.* **138,** 508-512. **3774**

The authors described a method for the demonstration of *T. gondii* in exudate from the peritoneal cavity of experimentally infected mice. The exudate is washed in physiological saline and centrifuged, then treated with acetone, petrol ether and carbon tetrachloride. This treatment results in separation of the toxoplasms from other components of the material such as cells, amorphous substances etc., thus making them clearly visible.—E.G.

MOREL, P. (1954). Toxoplasmose du lapin. **[Toxoplasmosis in rabbits.]**—*Rec. Méd. vét.* **130,** 371-376. **3775**

M. described an outbreak of toxoplasmosis in domestic rabbits, toxoplasms being recovered from the spleen. Aureomycin was used on one rabbit without effecting a cure.

—JAS G. O'SULLIVAN.

HOLZ, J. & BRINGMANN, G. (1954). Elektronenmikroskopische Befunde zur Aureomycin-Therapie der Toxoplasmose. **[Electron microscopic study of toxoplasms from infected mice which had been treated with aureomycin.]**—*Z. Hyg. InfektKr.* **139,** 393-398. **3776**

Electron microscopy of toxoplasms from the peritoneal cavity of experimentally infected mice which had been treated with aureomycin revealed changes in the nucleic acid metabolism and cellular division. In some of the parasites aureomycin caused lysis, whereas others appeared to be unaffected by the antibiotic.

—E.G.

I. SCHMIDT-HOENSDORF, F. & HOLZ, J. (1953). Zur Biologie und Morphologie des *Toxoplasma gondii*. **[Biology and morphology of *T. gondii*.]** — *Z. Hyg. InfektKr.* **136,** 601-604. **3777**

II. HOLZ, J. & ALBRECHT, M. (1953). Die Züchtung von *Toxoplasma gondii* in Zellkulturen. **[Cultivation of *Toxoplasma gondii* in tissue culture.]**—*Ibid.* 605-609. **3778**

I & II. The authors reported morphological and biological studies on *T. gondii* from tissue cultures. They investigated by cinematography the parasites' motility, entry into the cell, multiplication and exit from the cell. They estimated the content of the parasite in cell cultures.—R. B. HOLCOMBE.

DROBECK, H. P., MANWELL, R. D., BERNSTEIN, E. & DILLON, R. D. (1953). **Further studies of toxoplasmosis in birds.**—*Amer. J. Hyg.* **58,** 329-339. **3779**

The authors studied experimental toxoplasmosis in wild birds, the antibody development, the persistence of the disease and the method of natural infection. Turkeys were highly susceptible but the organisms were not very pathogenic. Many pigeons infected experimentally recovered completely. Infection of young birds during feeding by the parent could not be demonstrated.

— JAS. G. O'SULLIVAN.

HOLZ, J. & BRINGMANN, G. (1954). Vergleichende elektronenmikroskopische Untersuchungen an Toxoplasmen und Sarcosporidien. **[Comparative electron microscopical examination of *Toxoplasma* and *Sarcosporidia*.]**—*Z. Hyg. InfektKr.* **139,** 239-242. **3780**

The authors stated that the structure and arrangement of cells in sarcosporidia and toxoplasma as seen by electron microscopy, differed to such an extent that a systematic relationship between the two organisms appeared unlikely. With the conventional microscope, however, differentiation of the two organisms was difficult.—E.G.

BRINGMANN, G. & HOLZ, J. (1954). Elektronenmikroskopische Befunde über Kleinformen der Sarcosporidien. **[Electron microscopical study of small forms of sarcosporidia.]**—*Z. Hyg. InfektKr.* **139,** 309-316. **3781**

The authors examined sarcosporidia by electron microscopy and observed two types of unusually small forms of the parasite, the sizes of which ranged from 250–500 $\mu\mu$ and from 100–200 $\mu\mu$, which they named macrotomonts and microtomonts respectively.—E.G.

HOLZ, J. (1953). Die Pathogenität der Sarkosporidien. **[Pathogenicity of sarcosporidia.]** —*Mh. Tierheilk.* **5,** 348-356. **3782**

A toxic substance prepared from sarcosporidia from sheep yielded two fractions, *i.e.*, an agglutinin and a toxin. The former agglutin-

ated human, sheep, and rabbit erythrocytes, but deaths of experimental animals after intravenous injection were due solely to the toxin. Although gastric juice renders the toxic substance harmless, pathogenic effects following ingestion of sarcosporidia are due to its absorption before entry into the stomach or to insufficient gastric juice.—M. L. CLARKE.

See also absts. **3953** (report, Belgium); **3955-3956** (reports, Sudan); **3961** (textbook, protozoology).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

I. KORN, G. (1952). Die Erkrankung des Goldhamsters, *Mesocricetus auratus*, an Maul- und Klauenseuche. **[Infection of hamsters with foot and mouth disease.]**—*Arch. exp. VetMed.* **6,** Suppl. pp. 36-37. **3783**

II. KORN, G. (1953). Die Pathogenese und Histogenese der Maul- und Klauenseuche des Goldhamsters, *Mesocricetus auratus*. **[Pathogenesis and histology of foot and mouth disease in hamsters.]** — *Arch. exp. VetMed.* **7,** 192-225. **3784**

I. The most sensitive route for the infection of hamsters is by scarification of the hind feet. Local vesiculation does not occur but two days after inoculation a conjunctivitis and a distinct swelling of the tongue are often seen. The tongue sometimes shows minute vesicles. The only other clin. signs are a loss in wt. and swelling of the fore-pads. The blood is infective in low dilns. on the 2nd–4th days after inoculation. Higher titres were not found in the lungs, liver or spleen.

By histological examination of the inoculated pads distinct vesiculation of the epithelium was demonstrated and also degenerative changes in the adjacent muscles. Degeneration was also found in the tongue and heart muscle.

Infection with the standard g. pig strains caused up to 80% mortality and death usually occurred before the fourth day. Spontaneous infections with these strains and with cattle strains were observed.

II. After reviewing in some detail the literature concerning the infection of other small lab. animals (g. pigs, cats, dogs, hedgehogs, rabbits, rats and armadillos) with the virus of F. & M. disease K. gave a full and noteworthy account of his studies with the hamster. All the main findings were previously summarized [I. *supra*].—H. H. SKINNER.

CUNHA, R. G. & EICHHORN, E. A. (1954). **Influence of cortisone on susceptibility of adult mice to foot-and-mouth disease virus.**—*Amer. J. vet. Res.* **15,** 149-151. [Authors' conclusions modified.] **3785**

Normal adult mice can be infected with F. & M. disease virus and show symptoms and mortality if previously inoculated with 5 mg. of cortisone. This susceptibility is, however, less than that of unweaned mice. Consecutive passages of the virus in adult mice previously inoculated with cortisone modify the virus in such a way as to make it infective for normal adult mice.

Serum-neutralization tests in unweaned mice and c.f. tests with known positive sera revealed no modification in the type of the virus as a result of mouse passage.

ROSENBUSCH, C. T. (1953). Multiplicación del virus aftoso en cultivos de tejidos para la elaboración de vacuna. **[Cultivation of the foot and mouth disease virus in tissue cultures of bovine lingual epithelium.]**—*Gac. Vet., B. Aires.* **15,** 99-100. **3786**

R. described the growth of F. & M. disease virus in tissue cultures of the stratum spinosum of the bovine tongue. Growth begins at about 14 hours and reaches its maximum at about 30 hours. It is estimated by the complement-fixation test, supplemented if necessary by animal inoculation tests. Vaccines prepared from the culture are as effective as those prepared from naturally occurring virus.

—I. W. JENNINGS.

MÖHLMANN, H. & FUCHS, F. (1952). Über die Beziehungen zwischen Virus und komplementbindendem Antigen der Maul- und Klauenseuche. **[Virus-antigen relationship in foot and mouth disease.]**—*Arch. exp. VetMed.* **6,** 101-112. **3787**

In F. & M. disease as in some other virus diseases the complement-fixing antigen is not the virus itself. The antigen may be utilized for determining the virus strains but not their virulence or immunizing power.

—W. G. SILLER.

PYL, G. (1952). Zur Kenntnis der Adsorbatimpfstoffe. Reinigung des neurotrop modifizierten Meerschweinchen-B-Stammes des Maul- und Klauenseuchevirus und sein dadurch verändertes Verhalten bei der Adsorption. **[Adsorbate vaccines. Purification of g. pig neurotropic type B (French strain**

A) foot and mouth disease virus and its behaviour during adsorption.] — *Arch. exp. VetMed.* **6,** 113-117. **3788**

Efficient adsorbate vaccines can only be produced from substrates containing a high concentration of purified virus. The virus should be readily adsorbed and have a low dissociability.

P. described a method of purifying the g. pig neurotropic strain 'B' [French type A] of F. & M. disease virus: 50% of non-specific protein is removed from mouse brain emulsion by chloroform; almost all the virus is then precipitated from the supernatant fluid with acetone and resuspended by ultracentrifugation in buffered saline. This form of virus is very susceptible to the effects of drying, it is readily adsorbed by aluminium hydroxide and does not dissolve readily.—W. G. SILLER.

PYL, G. (1953). Die Herstellung eines Konzentrat-Adsorbat-Impfstoffes gegen Maul- und Klauenseuche aus gereinigtem Antigen. **[A concentrated adsorbate vaccine against foot and mouth disease prepared from purified antigen.]** — *Arch. exp. VetMed.* **7,** 238-245. **3789**

From experiments in cattle and pigs it was concluded that the normal vaccinating dose could be reduced to about one-fiftieth by carrying out a preliminary concentration of the antigen in the original unfiltered tissue suspension. This was done by treatment with chloroform, precipitation of the water fraction with acetone, and removal of denatured albumin by centrifugation. No study was made of the speed of onset of the immunity produced or of its duration.—H. H. SKINNER.

ORTH, E. & PUNTIGAM, F. (1952). Ueber elektronenoptische Untersuchungen bei Verdacht einer Erkrankung an Maul- und Klauenseuche des Menschen. **[Electron microscopic diagnosis of foot and mouth disease in man.]**—*Wien. med. Wschr.* **102,** 400-401. **3790**

By means of examination of vesicle material from suspected cases of F. & M. disease in man by electron microscopy, it was possible to exclude F. & M. disease when virus particles typical of "non-specific aphthous stomatitis" were present. A positive diagnosis of F. & M. disease was not possible.—W. R. BETT.

FLIR, K. & LINKE, E. (1953). Zum Auftreten der Aujeszkyschen Krankheit in Deutschland. **[Occurrence of Aujeszky's disease in Germany.]**—*Tierärztl, Umsch.* **8,** 449-453. **3791**

The authors reported the clinical and P.M. appearances of Aujeszky's disease in two dogs. Histologically a meningo-encephalitis was diagnosed, affecting primarily the medulla oblongata; this readily differentiated it from rabies.—W. G. SILLER.

REAGAN, R. L., DELAHA, E. C., STEWART, M. T. & BRUECKNER, A. L. (1954). **Electron micrographs of erythrocytes from Swiss albino mice infected with the Aujeszky strain of pseudorabies virus.**—*Amer. J. vet. Res.* **15,** 166-170. [Authors' summary modified.] **3792**

Electron microscopic studies were made of erythrocytes from Swiss albino mice injected intraperitoneally with pseudorabies virus (Aujeszky strain). Electron micrographs of erythrocytes obtained from infected mice at 24, 30, 48, 54, 72, and 96 hours after inoculation revealed the presence of virus-like particles resembling in shape and contour those of the pseudorabies virus. Erythrocyte specimens obtained at these intervals after inoculation were also infective for Swiss albino mice when injected intracerebrally. No virus-like particles were demonstrable in uninoculated controls.

ESQUIVEL, R. B. M. (1954). Organización de la lucha antirrábica, desde el punto de vista veterinario. **[Organization of the control of rabies in the Argentine.]**—*Rev. Vet. milit., B. Aires.* **2,** pp. 10-16 & 18. **3793**

E. discussed the present position of rabies in the Argentine. While there was need for research into the extent to which wild animals in the country were infected, the crux of the problem was that the great cities harboured numerous stray dogs (641 rabid dogs were brought to the rabies centre in 1951). He considered that a vigorous campaign along conventional lines would be effective: dog owners should be compelled to take out licences, and stray dogs systematically rounded up and destroyed. Vaccination on a large scale was essential, but the public would require to be convinced of its necessity before effective measures could be taken.—A.S.

CORSALINI, T. (1954). L'albuminuria in ovini iniettati con virus fisso della rabbia. **[Albuminuria in sheep infected with fixed rabies virus.]**—*Vet. ital.* **5,** 218-219. [English, French and German summaries.] **3794**

Twenty-six out of 103 sheep infected with fixed rabies virus had albuminuria. Tests on a further 11 sheep led the author to believe that the albuminuria was only transient.

—I. W. JENNINGS.

COLLIER, L. H. (1954). **The preservation of vaccinia virus.**—*Bact. Rev.* **18,** 74-86. **3795**

C. discussed the methods which have been used from the earliest times up to the present day in attempts to solve the problem of preserving vaccinia virus. Preservation on ivory points and glass was followed by the drying of lymph from the liquid state in bulk by various methods, then the addition of protective substances to liquid suspensions of the virus was tried, and now the drying of the virus from the frozen state is used. The results obtained have been and still are variable.—A. ACKROYD.

RAMON, G., RICHOU, R., THIÉRY, J.-P., SALOMON, LOUIS, SALOMON, LÉONE & DOUCET. M.-P. (1954). Sur le perfectionnement du vaccin et de la vaccination antivarioliques. Sur un procédé de culture "in vitro" du virus de la vaccine. [**Preparation of smallpox vaccine from tissue culture virus.**]—*Rev. Immunol.* **18,** 1-20. **3796**

The authors criticized the current method of producing smallpox vaccine, in which skin scrapings are taken from calves inoculated by scarification: they pointed out the dangers of bacterial contamination inherent in the method.

In a series of experiments they were able to cultivate the virus *in vitro,* using media consisting of living fragments of foetal calf-skin suspended in amniotic or cerebrospinal fluid. Much of the virus adhered to the skin particles, but a proportion was recoverable from the supernatant fluid. Serial passage of the virus was possible in these media.

The authors are at present studying the immunizing properties of the virus so cultured. —A.S.

TAKEMOTO, K. (1954). **Use of a cation exchange resin for isolation of influenza virus.**—*Proc. Soc. exp. Biol., N.Y.* **85,** 670-672. [Author's summary copied *verbatim.*] **3797**

Early passage, egg-adapted Type A influenza virus is completely adsorbed on a cation exchange resin, and nearly all of the adsorbed virus can be eluted as infective particles. Influenza A virus was recovered from human throat washings and swabs more frequently with the use of resin than without it.

SIMPSON, R. E. H. & SUTHERLAND, I. (1954). **Does influenza spread within the household.** —*Lancet.* **266,** 721-726. **3798**

During the 1951 influenza epidemic the authors carried out a statistical analysis of the spread of the disease within 100 households where one member of the family was affected. It was intended to see whether the pattern of incidence among other members of the households agreed with that which would be expected if the disease were spread directly from person to person by contact. Comparison was made with a study on measles, where the person-to-person spread was clearly brought out by statistical analysis. No clear conclusion could, however, be drawn from the influenza study as there were difficulties of a kind not encountered in the case of measles: definite differential diagnosis, for example, was difficult, and the incubation period could vary widely. More could be learned by a fuller study of influenza and other diseases along similar lines.—A.S.

CHANG HSIOH-TEH, CH'IU FU-HSI & WANG HNA-CH'ENG. (1954). **A diagnostic skin test for epidemic encephalitis due to Japanese B virus.**—*Chin. med. J.* **72,** 25-32. [In English. Authors' summary slightly modified.] **3799**

A skin test antigen was made from mouse brains infected with Japanese B encephalitis virus and inactivated by heat. Of 60 human patients suffering from the disease with positive complement-fixation reaction 49 gave positive results to this skin test. The skin test in most patients becomes positive during the fifth week after the onset of the disease.

CHAMBERLAIN, R. W. & SIKES, R. K. (1954). **Effects of storage on Eastern equine encephalitis virus.**—*Proc. Soc. exp. Biol., N.Y.* **85,** 667-670. [Authors' summary modified.] **3800**

A 4-month study on the influence of certain factors upon Eastern equine encephalitis (EEE) virus in stored mosquitoes and brain tissue revealed the following:—Killing of EEE-infected mosquitoes by brief exposure to ether or chloroform fumes had no ill effects upon the virus they contained. A constant temp. of −70° or −20°C. was found best for preserving EEE virus in intact, infected mosquitoes. Several hours at room temp. caused loss of viability of most of the virus present, as did fluctuations 2 to 5 times weekly from 0° to −20°C. Fluctuations in temp. below the freezing point also caused some drop in virus titre. Carbon dioxide gas in an open type dry ice chest had no apparent deleterious effect upon EEE virus in infected, intact mosquitoes, intact mouse brain tissue, or mosquito and mouse brain suspensions in distilled water, buffered saline, 0·1% bovine albumin, or 30% normal horse serum. Distilled water was an unsuitable diluent for suspensions of EEE-infected mosquitoes. Buffered saline and 0·1% bovine albumin both

gave better, but still rather poor results. Thirty per cent. normal horse serum proved superior, since with it no drop in virus titre was observed. All the above diluents gave satisfactory results in 10% EEE-infected mouse brain suspensions during the 4-month test period.

NAGEL, H. C. & DE DIEGO, A. I. (1953). Contribución al estudio de los virus de la encéfalomielitis equina de la Argentina. **[Argentine strains of equine encephalomyelitis virus.]** — *Gac. vet., B. Aires.* **15,** 204-210. [English and German summaries.] **3801**

The authors used the complement-fixation test to compare 8 strains of equine encephalomyelitis, isolated on various occasions in the Argentine, with the American Eastern and Western types. One corresponded to the Western type, 6 to the Eastern type, and one to neither of these types.—A.S.

KRÜGER, H. (1954). Studien zur Ätiologie der ansteckenden Gehirn-Rückenmark-Entzündung des Pferdes (Bornasche Krankheit). **[Aetiological study of Borna disease.]**—*Mh. VetMed.* **9,** 73-77. **3802**

A number of horses affected with Borna disease had a high leptospiral titre; their blood contained "pseudo-spirochaetes", which could not be maintained on artificial media. Clinical cases responded favourably to antibiotics. K. therefore, suggested that Borna disease is not caused by a virus alone.—W. G. SILLER.

DE KOCK, G. & NEITZ, W. O. (1950). **Sheep as a reservoir host of snotsiekte (or bovine malignant catarrhal fever) of cattle in South Africa.**—*S. Afr. J. Sci.* **46,** 176-180. **3803**

The authors discussed the role of sheep as carriers of bovine malignant catarrh in the Union of South Africa. They failed, however, to reproduce typical symptoms of the disease in sheep by inoculation of blood from infected cattle. Sheep appeared to be carriers only in areas where formerly wildebeest had been regarded as the source of infection. The authors advocated strict segregation of sheep and cattle on farms where there had previously been outbreaks and where contact with wildebeest could definitely be ruled out.—E.G.

MORRIS, J. A., COBURN, D. R. & O'CONNOR, J. R. (1954). **Rapid protection of ferrets against fully virulent distemper virus with nebulized attenuated distemper virus.** — *Cornell Vet.* **44,** 198-207. [Authors' summary modified.] **3804**

A single exposure to nebulized attenuated distemper virus induced in ferrets a resistance of rapid onset to fully virulent distemper virus; this refractory state was demonstrable after as short a period as 6 hours and persisted for at least 30 days. Exposure of distemper-susceptible ferrets to nebulized killed distemper virus of the ferret spleen type failed to induce a resistance to virulent distemper virus.

BAKER, G. A., GORHAM, J. R. & LEADER, R. W. (1954). **Studies on an *in ovo* neutralization test for distemper.**—*Amer. J. vet. Res.* **15,** 102-107. [Authors' summary modified.] **3805**

The authors described a quantitative *in ovo* neutralization test for distemper, using the serial serum dilution-constant virus procedure. The test was applied to samples of mink and ferret serum collected under various conditions of exposure to distemper virus. In ferrets vaccinated with egg-adapted distemper virus, circulating antibodies were first detected 7 days after vaccination whereas resistance to virulent virus developed within 2 days.

Rising titres of antibodies were demonstrated in mink and in ferret serums from 7 to 30 days after vaccination.

Neutralizing antibodies were detected in all serum samples from a group of non-vaccinated mink that were exposed to distemper-infected ferrets. Serum collected from animals not previously exposed to the virus exhibited no neutralizing ability.

DEDIÉ, K. & KLAPÖTKE, E. (1952). Die Züchtung des Virus der Hundestaupe im Gewebsexplantat. II. Die Züchtung in laufenden Kulturpassagen. **[Tissue culture of the canine distemper virus and effect of repeated passages.]**—*Arch. exp. VetMed.* **6,** 57-64. **3806**

The virus of dog distemper was maintained for 19 passages on splenic tissue culture which was found to be a superior medium to cultured lymph node, lung or testicular tissue. The growth of the virus follows a cyclical pattern.

—W. G. SILLER.

CELIKER, A. & GILLESPIE, J. H. (1954). **The effect of temperature, pH, and certain chemicals on egg-cultivated distemper virus.**—*Cornell Vet.* **44,** 276-280. [Abst. from authors' summary.] **3807**

The activity of the Onderstepoort strain of egg-cultivated distemper virus was destroyed by heat at 50°C. for 60 min. or 55°C. for 10 min. At 25°C. the virus was inactivated in 7–8 days, but 7–8 weeks were required for inactivation at 4°C. Virus remained viable after it was frozen and thawed 20 times but not after 25 times. Virus retained its activity between

a pH range of 4·4 to 10·4 for 24 hours, whereas a pH of 4·2 and 10·9 inactivated it in 2 hours. Inactivation of the virus by 0·1% formol required 1 to 2 hours, whereas 0·225% formol inactivated it in 10–20 min. Inactivation of the virus by 0·5% phenol required 48 to 72 hours, while 0·75% phenol inactivated the virus after exposure for 10 min. A 0·300% soln. of chloroform inactivated the virus after 10 min., whereas a 0·275% soln. required between 48 and 72 hours. Roccal (a quaternary ammonium detergent) was effective at 0·2% after 30 min., while 0·3% inactivated it within 10 min.

HASE, A. (1954). Die Myxomatose der Wild- und Hauskaninchen. **[Myxomatosis in wild and domestic rabbits.]**—*NachrBl. dtsch. Pfl-SchDienst, Stuttgart.* **6,** 81-86. **3808**

H. described the history of myxomatosis from its discovery by Sanarelli in 1896, its use for the control of rabbits in Australia, till the present-day epidemic in Europe, which sprang from a single attempt to control rabbits on a farm in France.

He stated that since the first appearance of the disease in Germany in 1953, it had become a source of real and potential danger to economy, and that cases of myxomatosis in hares (*Lepus timidus*) had been reported from France in Oct. 1953 and Germany in Jan. 1954.

He suggested that a study should be made of the possible insect vectors, blood sucking or otherwise, since so far there had been nothing in German literature to show that steps in this direction had been taken.

There is a map showing affected areas of Western Germany. H. stated that domestic rabbits are an important economic factor, but the reduction in the number of wild rabbits is regarded in some quarters as beneficial to agriculture.—E.G.

CRAWLEY, J. F. (1954). **Incidence of Newcastle disease in Canadian poultry flocks during 1952-53.**—*Canad. J. comp. Med.* **18,** 128-130. **3809**

In conjunction with a previously reported survey for infectious bronchitis, sera were tested for N.D.V. antibodies by a modified H.I. test. About 12% of the flocks in 8 provinces were shown to have been infected on the basis of this test.—R. GWATKIN.

UPTON, E., HANSON, R. P. & BRANDLY, C. A. (1953). **Antigenic differences among strains of Newcastle disease virus.**—*Proc. Soc. exp. Biol., N.Y.* **84,** 691-693. [Authors' summary slightly modified.] **3810**

Of 17 heterologous combinations of Newcastle disease virus and antiserum used in serum neutralization tests, 13 exhibited a difference of greater than 1·0 log between the neutralization of the homologous and the heterologous virus by prepared antiserum. A difference of 5·0 logs was observed between 2 strains.

REAGAN, R. L., DELAHA, E. C., STEWART, M. T. & BRUECKNER, A. L. (1954). **Response of young rabbits to six Newcastle disease virus strains.**—*Poult. Sci.* **33,** 206-207. [Authors' summary modified.] **3811**

Young rabbits were susceptible by intracerebral inoculation to the six egg-adapted N.D.V. strains: California, Colorado, Connecticut, Delaware, Kentucky, and Minnesota, used in this study. One rabbit developed symptoms of N.D. after intranasal instillation of the Delaware strain. The virus from the brains of the rabbits which developed symptoms was confirmed to be N.D. virus by neutralization tests in 10-day chick embryos. Two rabbits were inoculated by each of the two routes with each strain.

SCHMIDT, U. (1952). Versuche mit Hertfordshire-Virus. **[Experiments with Hertfordshire strain of Newcastle disease virus.]** — *Arch. exp. VetMed.* **6,** Suppl. pp. 26-27. **3812**

While vaccination against Newcastle disease with live virus gives a more rapid and durable immunity than inactivated virus, it may be followed by losses of up to 7%. S. uses adsorbate living Hertfordshire strain of reduced virulence, which rarely causes clinical symptoms but which gives satisfactory immunity within 48 hours.—W. G. SILLER.

RICHTER, J. (1953). Enkele gegevens over de toepassing van levende entstof tegen pseudovogelpest. (Beaudette-Stam en Hitchner-Stam.) **[Use of living vaccines against Newcastle disease.]** — *Tijdschr. Diergeneesk.* **78,** 590-601. [English, French and German summaries.] **3813**

Individuals of a group (I) of 30 fowls, immunized 4 weeks beforehand with Beaudette virus (wing-web method) were challenged with virulent N.D.V. by the i/m route and placed in contact with 10 untreated fowls. In group II, 30 controls were infected i/m and placed in contact with 10 immunized fowls (wing-web). Of the immunized fowls none developed symptoms whereas 8 of the 10 controls, infected by contact with group I, died, as did 24 of the controls infected i/m.—C. A. VAN DORSSEN.

KLAPÖTKE, E. (1952). Viruswachstum in Kulturen von embryonalem Mäusegehirn. **[Culture of viruses in embryo mouse brain tissue.]** —*Arch. exp. VetMed.* **6,** Suppl. pp. 24-25. **3814**

Cultures were tested daily for infectivity, and with the viruses of Aujeszky's disease, influenza (PR8) and canine distemper infectivity was first detected on the fourth day. After the latter virus had been given 25 passages in culture its infectivity for the dog was reduced. With the virus of Newcastle disease infectivity persisted for 11 days and with fowl plague for 4 days. Swine fever virus did not survive after 2 days. Strains of F. & M. disease varied in their behaviour. Virus was either not recovered after the first day, or, after being recovered for two or three days it was not detected again until the fifth day, or, again, it was recovered throughout this period and up to the sixth day. —H. H. SKINNER.

TYRRELL, D. A. J. & HORSFALL, F. L., JR. (1953). **Neutralization of viruses by homologous immune serum. I. Quantitative studies on factors which affect the neutralization reaction with Newcastle disease, influenza A, and bacterial virus, T.**—*J. exp. Med.* **97,** 845-861. **3815**

The evidence presented points to a linear relationship between the logarithm of the serum dilution end point and the quantity of virus used. The authors discussed the effect of certain variables the most important of which appears to be the host cell system used. —D. LUKE.

TYRRELL, D. A. J. (1953). **Neutralization of viruses by homologous immune serum. II. Theoretical study of the equilibrium state.**—*J. exp. Med.* **97,** 863-870. [Author's summary modified.] **3816**

On the assumption that antibody is added to virus particles in a stepwise manner and that the reaction follows the law of mass action, T. deduced a theoretical equation for the equilibrium state of virus neutralization reactions. The theory was found to be in reasonable accord with the available data for the neutralization of bacterial viruses and it can be applied also to data for the neutralization of animal viruses.

REAGAN, R. L., STRAND, N. & BRUECKNER, A. L. (1954). **Response of the Swiss albino mouse to several virus strains after rectal instillation.**—*Amer. J. vet. Res.* **15,** 157-158. [Authors' summary modified.] **3817**

Twelve groups of mice were exposed rectally to Bunyamwera, Bwamba, Zika, Ntaya, Wyeomyia, Uganda S., Ilheus, Anopheles "A", Anopheles "B", 17D yellow fever, Semliki Forest, and egg-adapted Newcastle disease virus. Mice infected by rectal instillation with the Bunyamwera, Ilheus, Semliki Forest, Anopheles "A", and Uganda S viruses developed nervous symptoms indentical to those found in mice infected intracerebrally with these viruses. Mice infected per rectum with Bwamba, Zika, Ntaya, Anopheles "B", 17D yellow fever, egg-adapted Newcastle disease, and Wyeomyia viruses remained apparently healthy.

STANLEY, N. F. & PONSFORD, J. (1954). **Merthiolated serum as a cause of fibroblastic degeneration in tissue cultures.**—*Aust. J. Sci.* **16,** 189-190. **3818**

Merthiolated human serum in the absence of poliomyelitis virus caused degeneration of the fibroblasts in tissue cultures of monkey testis. Tests with (1) merthiolate alone, (2) samples of human and animal serum without merthiolate, and (3) of human and animal serum with varying concentrations of merthiolate, gave results which indicated that merthiolate may form a firm union with some component of human or animal serum to produce a toxic substance.—M. HARDY.

MARMION, B. P., STEWART, J., RICHMOND, P., BARBER, H. & STOKER, M. G. P. (1954). **Q fever in Great Britain. Sheep as a source of infection for man.** — *Lancet.* **266,** 1288-1291. **3819**

Of 906 serum samples from sheep killed in Kent abattoirs examined for complement-fixing antibodies, using the Nine Mile strain of *R. burneti* as antigen, 15 had antibody titres of 1:10 or more. There is suggestive evidence that infection of sheep is responsible for infection in man in the Romney Marsh area, which is heavily stocked with sheep. Sharp seasonal prevalence (March–June) of human Q fever is associated with sudden intense excretion of rickettsia by sheep at parturition, with increased farming activity, and with meteorological conditions favouring dissemination in dust. Infection of man from sheep, however, does not provide the entire explanation.—W. R. BETT.

SALISBURY, R. M. (1953). **"Q" fever and its human and animal association.**—*N.Z. med. J.* **52,** 260-264. **3820**

S. briefly reviewed the literature on Q fever. He reported abortion in an imported

Saanen milch goat while being held in quarantine. The appearance of the organisms isolated was entirely consistent with *R. burneti,* and the agglutination test was positive. He discussed the possibility of Q fever being present in New Zealand stock.—W. R. Bett.

Stoker, M. G. P. (1954). **Q fever. I. Clinical features and laboratory diagnosis.**—*Trans. R. Soc. trop. Med. Hyg.* **48,** 191-196. Discussion: pp. 203-207. **3821**

Marmion, B. P. (1954). **Q fever. II. Natural history and epidemiology of Q fever in man.** —*Ibid.* 197-203. Discussion: pp. 203-207. **3822**

I. Sporadic human infections and outbreaks of Q fever have been indentified all over the world. *R. burneti* is widely distributed in nature. S. described the clinical features of the disease in man.

II. The geographically widespread reservoir of Q fever in the world is the tick and its small wild-animal hosts. M. discussed the spread of infection among cattle and sheep. Man is accidentally infected during the passage of *R. burneti* among domestic animals.

—W. R. Bett.

See also absts. **3727** (acquired resistance of *Staph. aureus* to bacteriophage); **3849** (leucaemia caused by a virus?); **3948** (report, Great Britain); **3950-3951** (reports, Australia); **3954-3956** (reports, Sudan); **3958** (report, U.S.A.).

IMMUNITY

Stavitsky, A. B., Hackel, D. B. & Heymann, W. (1954). **Reduction of serum complement following *in vivo* tissue antigen-antibody reactions.**—*Proc. Soc. exp. Biol., N.Y.* **85,** 593-596. [Authors' summary slightly modified.] **3823**

Serum complement was reduced within 30 minutes after injection of rabbit and anti-rat kidney serum into rats. Complement was decreased in amount following the injection of this antiserum into bilaterally nephrectomized rats. Complement was also decreased in rats given this antiserum after antibodies to rat plasma and rat red cells had been removed. It was therefore concluded that complement may be reduced *in vivo* as a result of extra-renal tissue antigen-antibody reactions. The significance of the lowering of complement in relation to the development of the nephrotic syndrome remains to be determined.

Wood, H. F. (1953). **The relationship between the acute phase response and antibody production in the rabbit. I. Correlation between the early appearance of Cx-reactive protein and subsequent antibody production. II. The stimulation of Cx-reactive protein response by certain adjuvants and the relation of this response to the enhancement of antibody formation.** — *J. exp. Med.* **98,** 311-319 & 321-329. **3824**

I & II. I/v injection of certain weak antigens stimulated the early appearance of Cx-reactive protein (an acute phase substance precipitating with pneumococcal Cx polysaccharide) in the serum of those rabbits only which later produced good antibody. Other substances, including the vaccine adjuvants aquaphor ointment base and mineral oil, stimulated Cx-reactive protein production, and enhanced antibody production even when injected separately from the antigen.

Whether or not Cx-reactive protein is an essential stage in antibody production remains unknown.—J. E. Smith.

Stoner, R. D. & Hale, W. M. (1954). **Increased susceptibility of mice to anaphylactic shock following cobalt-60 gamma radiation.** —*J. Immunol.* **72,** 419-423. [Abst. from authors' summary.] **3825**

Exposure to gamma radiation of 650 rep. (roentgen equivalent physical) markedly enhanced active anaphylactic shock in mice sensitized with alum-precipitated tetanus toxoid and challenged with fluid tetanus toxoid 7 days after irradiation.

The enhancing effect of ionizing radiation upon the severity of the anaphylactic response is not of an immediate nature, but appears during a period of 2 to 7 days after irradiation.

Passive and reversed passive anaphylaxis was more severe in mice sensitized with homologous antibody 7 days after irradiation.

In irradiated mice sensitized with anti-bovine albumin rabbit serum there was increased sensitivity to passive anaphylaxis when challenged a day later with bovine albumin antigen.

Mice injected i/v with histamine 7 days after irradiation did not show increased sensitivity.

The antihistaminic agents, phenindamine (thephorin), the hydrochloride of diphenhydra-

mine (benadryl), and pyrrobutamine (pyronil), afforded almost complete protection from fatal anaphylaxis in irradiated mice.

DOERR, R. (1950-51). Die Immunitätsforschung. Ergebnisse und Probleme in Einzeldarstellungen. Band VI. (1950). Die Anaphylaxie. I; Band VII. (1951). Die Anaphylaxie II; Band VIII. (1951). Allergie. **[Immunological research. Results and problems. Vol. VI. Anaphylaxis. Part I; Vol. VII. Anaphylaxis. Part II. Immunological reaction and endogenous poisoning; Vol. VIII. Allergy.]** pp. 210, 102 and 214. Vienna: Springer-Verlag. Prices 51s. 6d.; 26s. 6d. and 50s. respectively. **3826**

These three volumes of some 500 pages in all, each with an extensive list of references and a subject index, provide a valuable source of information for the student of allergy and anaphylaxis.

Volume VI deals with anaphylaxis, active, passive and local, its symptomatology and pathology in different species, and anti-anaphylaxis. Volume VII is a direct continuation of the previous volume and deals with the various hypotheses advanced to explain anaphylaxis, the Schultz-Dale test (isolated duodenal segment of the sensitized g. pig), and a discussion of antigen-antibody reactions in anaphylaxis. Volume VIII is devoted to a study of allergy—genetical factors, mechanism of production, pathological physiology, symptomatology, diagnosis, prophylaxis and treatment.

Previous volumes have dealt with antibodies, antigens and complement and were published between 1947 and 1950. Further volumes on tissue immunity, immunity against bacteria, parasites, viruses and tumours, immunity in plants, and blood groups are to be published later. The complete series of volumes represents an attempt by the author to present a comprehensive review of the subject of immunity. The three volumes under review suggest that the whole work will be an invaluable reference work for all concerned with this vast subject.—E. G. WHITE.

See also absts. **3737** (allergic reaction of the central nervous system to tuberculin); **3742** (B.C.G.); **3752** (a rapid plate agglutination test for brucellosis); **3787** (virus-antigen relationship in F. & M. disease); **3788-3789** (adsorbate F. & M. disease vaccines); **3795** (preservation of vaccinia virus); **3796** (smallpox vaccine); **3799** (skin test for Japanese B encephalitis); **3804-3807** (distemper); **3810-3813** (Newcastle disease); **3815-3816** (neutralization of viruses by homologous immune serum).

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

BOUVIER, G. (1954). A propos de la pyobacillose des veaux du Brésil. Ses rapports avec les larves de *Dermatobia cyaniventris*. **[Lesions of the skin of calves caused by *Dermatobia cyaniventris* [*D. hominis*] in Brazil.**—*Schweiz. Arch. Tierheilk.* **96,** 210-213. [In French. English, German and Italian summaries.] **3827**

B. described infestation by larvae of *D. hominis* of calves 2–3 months old, which assumed epidemic proportions during the rainy season in parts of Brazil. The condition could be cured by washing affected calves in benzene hexachloride (B.H.C.) suspension and applying B.H.C. paste to the lesions.—R.M.

I. DE TOLEDO, A. A. (1951). Experiências sobre o combate ao berne por inseticidas. **[Control of *Dermatobia hominis* in cattle by benzene hexachloride and chlorinated camphene.]**—*Biológico.* **17,** 123-129. **3828**

II. DE TOLEDO, A. A. (1952). Nocividade das chuvas ao efeito inseticidas sôbre o berne. **[Effect of rain on the efficiency of insecticides against *Dermatobia hominis* of cattle.]**—*Ibid.* 57-61. **3829**

I. In order to assess the efficiency of a single application of either benzene hexachloride (B.H.C.) or chlorinated camphene against the larvae of *D. hominis* in cattle, T. compared the number of larvae in treated and untreated cattle each month over a period of 4–6 months. During the dry season (July-Oct.) the application of either 30 g. B.H.C. powder (3% γ-isomer) or 2 litres of 1:200 chlorinated camphene emulsion was equally efficient. During the rainy season (Nov.-April) the latter was slightly more efficient than the former. Neither preparation killed all the larvae: the number of larvae decreased after treatment, increasing slowly during the subsequent months.

II. The author found that, during the rainy season in Brazil, the most efficient preparation against the larvae of *D. hominis* under the skin of cattle was a paste containing 3% γ-isomer B.H.C. When smeared on, this preparation was not easily removed by rain and, because of its low cost, applications could be repeated weekly.—R.M.

KOUTZ, F. R., CHAMBERLAIN, D. M. & COLE, C. R. (1953). *Pneumonyssus caninum* **in the nasal cavity and paranasal sinuses. A report**

of its occurrence in eight dogs.—*J. Amer. vet. med. Ass.* **122,** 106-109. **3830**

P.M. examination of 8 dogs that had died or been destroyed after a long illness revealed infestation with 12 – 120, *P. caninum* in the nasal cavity; there were no recognizable lesions though there was excessive mucus production. —D. POYNTER.

GAUD, J. (1953). Sarcoptidés plumicoles des oiseaux d'Afrique occidentale et centrale. **[Feather mites of birds in West and Central Africa.]**—*Ann. Parasit. hum. comp.* **28,** 193-226. **3831**

Mites of the sub-families Proctophyllodinae, Analgesinae, Dermoglyphinae and Pterolichinae were collected from 49 different wild birds in a zone stretching across West and Central Africa. G. described the characters of these genera and gave an account of the distribution of the hosts. He gave a host list in systematic order. He described 20 new species of mites.—JAS. G. O'SULLIVAN.

See also absts. **3840** (growth of *Dirofilaria immitis* in the mosquito); **3852** (role of blood-sucking parasites in the transmission of avian leucosis); **3950** (report, Australia); **3958** (report, U.S.A.).

PARASITES IN RELATION TO DISEASE [HELMINTHS]

WILCOCKS, C. (1954). **The importance of malacology in helminthology.**—*Trop. Dis. Bull.* **51,** 329-342. **3832**

It is known that in mosquitoes and other arthropods the ability to act as host to a parasite may be associated with anatomical or physiological characters serving to distinquish between species or between races of the same species.

The importance of snails as vectors of helminths, and particularly of schistosomes, makes it essential that they should be classified on sound anatomical and perhaps physiological lines, and not, as at present, on their shells alone.

Since such a classification is fundamental to the eradication of schistosomiasis, the World Health Organization is making arrangements to train the necessary malacologists.—A.S.

RUIZ, J. M. (1952). Técnica de perfusão para a coleta de *Schistosoma mansoni* em animais de laboratorio. **[A perfusion technique for the collection of *S. mansoni* from laboratory animals.]** — *Mem. Inst. Butantan.* **24,** 101-110. **3833**

The apparatus described is illustrated in 9 photographs. It differs from those previously described in that it enables perfusion with two alternative fluids (sodium citrate and saline soln.) which are propelled from the containers, placed at a suitable height, by gravity through plastic cannulas adapted into fine flexible tubes with rounded edges which do not injure the blood vessels. With the containers at a height of 1·2 m. and using cannulas with an aperture of 0·75 mm. a flow of 30–40 ml. per min. was obtained. For g. pigs the external diam. of the cannula should be 1–1·5 mm. The whole technique from the opening of the carcass can be performed in an hour and complementary examination of the liver and the mesentery in a further half hour. The efficiency of the method was found to be 95%.—F.E.W.

POOLE, J. B. (1953). **The incidence of human trichinosis in Canada.**—*Canad. J. publ. Hlth.* **44,** 295-298. **3834**

The incidence of *Trichinella spiralis* in human diaphragm muscle from cadavers examined at random from eastern and western districts of Canada ranged from 6·5 to 7·3%. It occurs in animals from coast to coast in Canada, having been reported in the pig and wild rat and, in the Canadian Arctic, in the polar bear.—R. GWATKIN.

GOULD, S. E., GOMBERG, H. J. & BETHELL, F. H. (1954). **Control of trichinosis by gamma irradiation of pork.**—*J. Amer. med. Ass.* **154,** 653-658. [Authors' summary modified] **3835**

The results of irradiation of trichinous pork with cobalt 60, and of a preliminary study of irradiation with waste fission material contained in old nuclear fuel rods, agreed with the authors' previous findings on effects of Co^{60} on trichinous rat tissues. They indicated that exposure of all raw pork to gamma radiation by waste fission products might be a practical means of controlling trichinosis in human beings and in pigs.

DUNN, D. R. (1954). **I. The incidence of lungworms in pigs in north-west Britain. II. Some observations on the establishment of *Metastrongylus apri* in laboratory animals.**—*Trans.R.Soc. trop. Med. Hyg.* **48,** 9-10. **3836**

I. D. reported that lungworms (*Metastrongylus* spp.) were found in 15·7% of 890 pigs examined at a Cheshire bacon factory.

II. He described a method for culturing earthworms and infesting them with *M. apri*. *Eisenia foetida* was found to be the most suitable earthworm for this purpose. Material from infested earthworms was administered to various lab. animals. Young g. pigs appeared to be the most suitable experimental hosts.

—E. A. GIBSON.

MACKERRAS, M. J. & SANDARS, D. F. (1954). **Life-history of the rat lung-worm and its migration through the brain of its host.** [Correspondence.] — *Nature, Lond.* **173,** 956-957. **3837**

Adult *Angiostrongylus cantonensis* live in the pulmonary arteries, and their eggs are discharged into the blood stream. The first stage larvae develop in the alveoli of the lung, pass up the trachea, to be subsequently swallowed and pass out in the faeces. The larvae penetrate a slug, *Limax* sp. which acts as an intermediate host. Ingestion of this slug by a rat allows the worm larvae to be liberated into the intestine, whence they migrate through the brain tissue (where the final moult occurs), the sub-arachnoid spaces, and return to the pulmonary arteries.—D. W. JOLLY.

OLIVER, W. T. (1953). **Studies in phenothiazine. I. Some *in vitro* effects of phenothiazine on *Heterakis gallinae*.**—*Canad. J. comp. Med.* **17,** 435-447. **3838**

Phenothiazine was inactive against *H. gallinae in vitro*. Most of the absorbed drug remained unchanged within the worm. Ova in the uterus of worms which had been exposed for 72 hours could embryonate. It was lethal for non-embryonating extra-uterine ova, but not for embryonated ova.—R. GWATKIN.

NISHIYAMA, S. (1951). **[An experiment on the artificial infection of habronemiasis in the Kagoshima district.]**—*Jap. J. vet. Sci.* **13,** 201-209. [English summary.] **3839**

Habronema larvae were transplanted on to skin abrasions of one horse and on to the conjunctiva of another. The clin. and histopathological features were almost identical with those of natural cases of "summer sores".

—KOGI SAITO.

KARTMAN, L. (1953). **On the growth of *Dirofilaria immitis* in the mosquito.**—*J. trop. Med. Hyg.* **2,** 1062-1069. **3840**

K. observed the growth of *D. immitis* larvae in various mosquitoes and inter-specific hybrids. Growth of the larvae varied in the different hosts, and the larval length/width ratio varied considerably between genera and also, in *Culex* and *Anopheles*, between species. Third stage larvae grew greatly in length in favourable mosquito hosts, but did not grow equally, and after 20 days some were still short though the majority had reached 900μ. It is not known whether this phenomenon is associated with sex differentiation.—A.S.

RIEK, R. F. (1954). **A note on the occurrence of *Onchocerca reticulata* Diesing 1841 in the horse in Queensland.**—*Aust. vet. J.* **30,** 178-181. [Author's summary slightly modified.] **3841**

O. reticulata was found in the cervical ligament of 79·8% of 282 horses from various parts of Queensland. Measurements of the adult worms and of the microfilariae were recorded and compared with measurements reported by workers in other countries.

Less than 5% of the infested horses showed evidence of abscess formation in the region of the withers and only one animal presented the typical lesions of fistulous withers.

See also abst. **3958** (report, U.S.A.).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

FLIR, K. (1954). Zur vergleichenden Pathologie der Nierengeschwülste. **[Comparative pathology of kidney tumours.]**—*Dtsch. tierärztl. Wschr.* **61,** 147-150. **3842**

F. drew attention to the differences in incidence and structure between kidney tumours of animals and of man, and discussed particularly embryonal nephroma, epithelial tumours (adenoma and carcinoma) and Grawitz tumours. A table shows the types of renal tumour that have been recorded in animals, and photographs are shown of an embryonal nephroma of the pig and of the rabbit.—E. COTCHIN.

BASERGA, R. & SHUBIK, P. (1954). **The action of cortisone on transplanted and induced tumours in mice.** — *Cancer Res.* **14,** 12-16. **3843**

The growth of a mammary adenocarcinoma transplanted to mice of the strain in which it originated was only temporarily inhibited by daily cortisone treatment started 10 days before

the implant; cortisone did not favour growth in a heterologous strain. The induction of skin carcinoma in mice by painting with methylcholanthrene was greatly inhibited by cortisone administration. Cortisone was found to favour an increased incidence of metastasis in the case of the transplanted adenocarcinoma and of the induced carcinoma, and also of a sarcoma induced by s/c injection of methylcholanthrene. These observations suggest that "a good experimental tool is at hand for studies of mechanisms concerned in the metastatic spread of tumours".
—E. COTCHIN.

THIERY, G. (1954). Culture *in vivo* du sarcome de Sticker dans le liquide céphalo-rachidien. **[Culture of the venereal granuloma of dogs in the cerebrospinal fluid.]**—*Rec. Méd. vét.* **130,** 232-233. **3844**

T. injected into the sub-arachnoid space of four puppies, 2 months old, 0·5 ml. of a saline cell suspension from an iliac node metastasis of a transmissible venereal tumour. Two were inoculated *via* the occipital space, and two through the trephined skull. All developed nervous symptoms two weeks after inoculation, and death occurred on the 30th to 43rd days. Local tumours were found at the inoculation sites.—E. COTCHIN.

BRODEY, R. S., MCGRATH, J. T. & MARTIN, J. E. (1953). **Preliminary observations on the use of cortisone in canine mast cell sarcoma.** —*J. Amer. vet. med. Ass.* **123,** 391-394. [Authors' summary modified.] **3845**

The authors described the use of cortisone in the treatment of 3 cases of canine mast cell sarcoma. In each case, there was an initial dramatic reduction in the size of the tumour; however, in each case, decreasing of the dosage or cessation of the treatment was followed by a marked increase in the size of the tumour and the dogs had to be destroyed. Biopsies taken during cortisone therapy revealed a marked decrease in the number of neoplastic mast cells, and the presence of various degenerative changes. The use of cortisone resulted in various degrees of adrenal cortical atrophy.

NIELSEN, S. W., SCHRODER, J. D. & SMITH, D. L. T. (1954). **The pathology of osteogenic sarcoma in dogs.**—*J. Amer. vet. med. Ass.* **124,** 28-35. [Authors' summary slightly modified.] **3846**

In addition to the 33 cases of canine osteogenic sarcoma reported in the literature, the authors described 20 more cases. This tumour most often affects dogs of the large breeds, and in particular the Great Dane. The smaller breeds, which are more commonly represented in the normal dog population, are rarely affected. The age incidence seems to be around 6 or 7 years. The sites predominantly involved are the ends of the shafts of the long bones, especially the distal metaphysis of the radius. The growth is characterized by a progressive bone destruction of the cortex and diffuse infiltration of the medulla and surrounding soft tissues. Pulmonary metastases are frequent complications (7 of 16 cases examined P.M.). The histological appearance varies greatly and the radiographic picture can be very different from case to case, depending on which of the two properties—the osteolytic or the osteogenic —predominates. The treatment of choice is early amputation of the leg. If the tumour is diagnosed when it is well advanced, the chance for pulmonary metastases is so great that euthanasia should be advised. Radiographic examination of the lungs should be carried out in all cases. [See also *V.B.* **24,** 820.]

BODINGBAUER, J. (1954). Beitrag zur Klinik, Histopathologie, Therapie und Prophylaxe der Epuliden des Hundes. **[Clinical signs, histopathology, treatment and prophylaxis of epulis in dogs.]**—*Schweiz. Arch. Tierheilk.* **96,** 89-102. **3847**

Of 48 epulides found in 2,307 dogs, 32 affected the upper jaw, and 16 the lower; 33 of the affected animals were female, and 15 male. The incisor region was involved 7 times, the anterior premolar region 13, and the posterior premolar and molar region (especially immediately surrounding the carnassials) 16 times. The lesions were of inflammatory nature, and usually related to preceding tartar formation. The fibrous type of lesion was the commonest. Photographs show the macroscopic and histological appearances, and the surgical treatment is described in detail.—E. COTCHIN.

ROMANELLI, V. (1953). Sopra la leucemia basofila leucemica del cane. **[Basophilic leucaemia in a dog.]**—*Arch. Vet. Ital.* **4,** 499-522. [English, French, German and Spanish summaries.] **3848**

R. described the histological and haematological findings in basophilic leucaemia in a dog, claiming it to be the first description of such a case. There was marked enlargement of the spleen and of all lymph nodes, patches of swelling with necrosis of the small intestine, peritonitis, and oedema of the lungs; 58·5% of the w.b.c. were basophile leucocytes.—R.M.

GROSS, L. (1954). **Is leukemia caused by a transmissible virus? A working hypothesis.** —*Blood.* **9,** 557-573. **3849**

From a consideration of the "vertical transmission" serially from parent to offspring of certain pathogenic agents, and of avian lymphomatosis, mouse leucaemia, and reported cases of familial incidence of leucosis in cattle and in human beings, G. developed the hypothesis that leucaemia in man may occur as a result of the activation of a submicroscopic oncogenic agent, transmitted directly through the germinal cells from one generation to another. The agent, which would usually exist in an inactive form and might in fact never become activated, might be "triggered off" by obscure and presumably varied stimuli, in which event cases would appear ostensibly to be sporadic. He discussed the implications of this hypothesis.
—E. COTCHIN.

JACKSON, J. F. (1954). **The cytology of the degenerating leukocyte.**—*J. Lab. clin. Med.* **43,** 227-234. **3850**

Certain neutrophile leucocytes in urinary sediments stained with an alcoholic mixture of crystal violet and safranin O are relatively large, pale-blue staining cells, characterized by their tendency to variability in size and shape, to vacuolization, extrusion of fragments of cytoplasm, and to Brownian movements of their cytoplasmic granules. These cells have been reported to be correlated in human beings with the presence of pyelonephritis. J. reported experiments using various methods of blood preservation, and incubation in saline of varied tonicity, which revealed that the appearance of these "G.M." (granular motility) cells results from non-specific damage decreasing the cytoplasmic viscosity. As neutrophiles become progressively more damaged, the cytoplasmic granules lose their affinity for neutral red, while neutral red vacuoles (shown to contain ribonucleic acid) appear in the cytoplasm. When neutral red vacuoles were fixed, and the neutral red was removed, granules were found which stained deeply with basic dyes, bearing similarity to the "toxic granules" seen in neutrophiles in the blood from a case of bacterial endocarditis.—E. COTCHIN.

ENGLERT, H. K. & GÖBEL, F. (1954). Leukosebehandlung beim Hund mit Stickstofflost. **[Treatment of leucosis in the dog with nitrogen mustard.]** — *Tierärztl. Umsch.* **9,** 39-42. **3851**

A 5-year-old Alsatian dog developed lymphatic leucosis with a myeloid blood picture. A temporary clinical improvement, with regression in size of the enlarged lymph nodes, resulted from a course of i/v injections of nitrogen mustard, but 4 weeks after the last injection, the dog was returned by the owner for destruction, and generalized lymphatic leucosis was found P.M.—E. COTCHIN.

HUTT, F. B. & COLE, R. K. (1953). **On fleas, blood and the control of leucosis.**—*World's Poult. Sci. J.* **9,** 7-13. **3852**

The authors criticized Carr's paper on leucosis [*V.B.* **23,** 1308], particularly as to the role of blood-sucking parasites in its spread, the relative importance of egg transmission, and the alleged impracticability of breeding resistant strains.—D. LUKE.

BURMESTER, B. R. & GENTRY, R. F. (1954). **The transmission of avian visceral lymphomatosis by contact.** — *Cancer Res.* **14,** 34-42. **3853**

The authors reported experiments with four strains of the filtrable agent of visceral lymphomatosis. These indicated that visceral lymphomatosis is transmitted by contact with inoculated chickens, but that the extent of the transmission is subject to at present unexplained variations. The spread from chickens, inoculated at one day of age, to non-inoculated chickens of the same age could be minimized or prevented by raising them in solid-walled open-topped cubicles, if measures were adopted to prevent the direct transfer of infectious material from one cubicle to another; the length of the isolation period necessary to prevent contact transmission appeared to be at least 60 days. There was no evidence of contact spread of osteopetrosis gallinarum, which occurred in some inoculated chickens, and low rates of neural lymphomatosis occurred in inoculated and control chickens more or less equally. The results indicated that the causative agent of visceral lymphomatosis is different from that causing osteopetrosis gallinarum and that causing neural lymphomatosis.—E. COTCHIN.

LUCAS, A. M., DENINGTON, E. M., COTTRAL, G. E. & BURMESTER, B. R. (1954). **Production of so-called normal lymphoid foci following inoculation with lymphoid tumor filtrate. I. Pancreas. II. Liver and spleen.**—*Poult. Sci.* **33,** 562-570 & 571-584. **3854**

Twenty-four days after 3-day-old chicks were inoculated intraperitoneally with cell-free material containing lymphomatosis agent (tumour strain RPL 12), the number of lymphoid areas in the pancreas was double that in the

controls, and after 100 days the difference was approx. five-fold. In the liver, the increase after 24 days was 3·5 fold, whereas after 100 days the number of lymphoid areas found in the treated group was the same as that in the control group; fluctuations in the amount of reticular tissue in the liver paralleled the amount of lymphoid tissue. In the spleen, lymphoid tissue of two types is present—one, the diffuse stroma called "white pulp", the other, aggregates of lymphocytes forming definite focal lymphoid areas—these latter alone showed association with inoculation of live virus. Killed virus significantly reduced the number of lymphoid areas at 27 days in the liver and pancreas.

The authors recorded some observations on the structure of the avian pancreas, liver and spleen, and discussed the condition of lymphomatosis in its infectious and neoplastic phases.

—E. Cotchin.

NUTRITIONAL AND METABOLIC DISORDERS

Elam, J. F., Jacobs, R. L., Fowler, J., Hale, F. & Couch, J. R. (1953). **Effect of feeding chloromycetin mycelial meal upon the growth and fecal microflora of swine.**—*J. Anim. Sci.* **12**, 819-823. **3855**

Young Duroc pigs on a vegetable diet showed a slight increase in weight and feed efficiency when given chloromycetin mycelial meal alone or with meat-scraps and vitamin B_{12}. High faecal clostridium counts due to meat feeding were reduced when the mycelial meal was also given.—P. H. Herbert.

Slanetz, C. A. (1954). **Use of antibiotics and residues in research animal stock diets.**—*Amer. J. publ. Hlth.* **44**, 328-330. **3856**

A note on experiments on the use of antibiotics and antibiotic residues in the diets of animals maintained for research purposes. G. pigs fed antibiotic residues gained weight more slowly than controls, and lost weight after 3 months. Mortality among them was high in late pregnancy and shortly after parturition. Rats and mice kept on stock diets with antibiotic residues yielded higher agglutinin titres for *Salmonella enteritidis* than controls, when injected with phenolized antigen. When they were fed antibiotics over a period, however, there was an adverse effect on antibody production.—A.S.

Ilančić, D., Ježić, J. & Šmalcelj, I. (1953). Djelovanje pivskog i pekarskog kvasca na stimulaciju tova starijih svinja. [**Effect of brewers' and bakers' yeast on fattening of pigs.**] — *Veterinaria, Sarajevo.* **2**, 288-298. [In Croat. English summary.] **3857**

Pigs, 12–15 months old, fed on maize meal supplemented with 55–110 g. of dry brewers' yeast daily for 95 days made more substantial and economical gain in weight than control pigs given no supplement. Results with bakers' yeast were no better than in the control group.

—I. Martini.

Underwood, E. J. & Muir, R. J. (1954). **Aspects of protein nutrition in animals.**—*J. Aust. Inst. agric. Sci.* **19**, 214-221. **3858**

The authors briefly summarised the present state of knowledge of the content and quality of protein in foodstuffs and of protein digestibility in monogastric animals. They discussed the implications of some recent findings on protein quality and utilization in ruminants and gave a brief summary of knowledge of the nutritive value of rumen bacterial protein.

—R. L. Reid.

Moruzzi, G., Rabbi, A. & Piccioni, M. (1951). **Animal protein factor deficiency in rats : cutaneous manifestations.** — *Int. Z. Vitaminforsch.* **23**, 59-63. [In English. French and German summaries.] **3859**

A report on further observations on survivors of the first generation of rats fed a diet deficient in the animal protein factor found in crude casein. For 5 months of life the surviving young have a stable weight curve, though lower than that of controls. The av. live litter born is 5·5 as compared with 7·7 for normal subjects, their av. weight being 3 g. as compared with 4·4 g. for normal young. From the 7th month the weight curve decreases; loss of hair begins at the pubic region, and affects the hind legs, thighs and trunk. Alopecia spreads from the abdomen to the thorax, reaching a peak in the 12–13th month when the animals weaken and die. Complete remission of the lesions occurred when affected rats were fed concentrated washings of crude casein containing approx. 20 g. of the water-soluble fraction. None of the known factors of the vitamin B complex was effective when started either at the 5th or the 8th month of life, nor was the addition of 2% sodium chloride to the deficient diet effective.—F.E.W.

Dick, A. T. (1953). **The control of copper storage in the liver of sheep by inorganic sulphate**

and molybdenum. — *Aust. vet. J.* **29,** 233-239. **3860**

On copper intakes of 10 mg. per day, liver storage was greater in sheep on a diet of oat hay than in those on a diet of lucerne hay. When the molybdenum intake was increased to 10 mg. per day, the storage of copper was significantly decreased in the latter but not in the former. This effect was shown to be due to the difference in inorganic sulphate content of diets. Molybdenum limits copper storage in the liver of sheep only when adequate inorganic sulphate is also present in the diet. With sulphate intakes of approx. 2 g. per day, as little as 0·5 mg. molybdenum per day will significantly limit copper storage.

D. discussed the results in relation to chronic copper poisoning and clin. copper deficiency in grazing sheep.—R. L. Reid.

Harvey, J. M. & Sutherland, A. K. (1953). **Parenteral copper therapy in ruminants.**—*Aust. vet. J.* **29,** 261-268. **3861**

Because several accepted methods of providing copper to prevent deficiency in grazing sheep and cattle are not applicable under extensive grazing conditions in Queensland, various methods of providing a large dose of copper in a single parenteral injection were studied.

Ten compounds, including copper sulphate, all produced extensive damage in sheep at the site of subcutaneous injection. Copper sulphate injections (200 mg. Cu) showed some promise in cattle.

Copper oxine (8-hydroxyquinoline) was not absorbed; copper versenate (ethylenediaminetetraacetate) gave maximum storage without damage at the site of injection but was toxic. Copper glycinate (aminoacetate) showed most promise by reason of minimal damage at the site of injection, rapid absorption, maximum storage and low toxicity.—R. L. Reid.

O'Donoghue, J. G. (1954). **Vitamin A deficiency in beef cattle in Alberta 1953.**—*Canad. J. comp. Med.* **18,** 141-148. **3862**

An account of an outbreak in cattle in Alberta in 1953.

While admitting that the evidence presented is not irrefutable, the author considers that a diagnosis of vitamin A deficiency was justified. Symptoms of nervous system origin were prominent. Vitamin A therapy proved to be beneficial in many cases.—R. Gwatkin.

Brusa, A. & Testa, F. (1953). Lesioni nel sistema nervoso centrale di cavie in ipervitaminosi A. [**Brain lesions in g. pigs with hypervitaminosis A.**]—*Int. Z. Vitaminforsch.* **25,** 55-62. [In Italian. English, French and German summaries.] **3863**

Adult g. pigs on a normal lab. diet including green vegetables, were given 300–600 i.u. of synthetic vitamin A in arachis oil per g. body wt. daily *per os* for 10–17 days. There was considerable loss of weight, loss of hair, weakness and anorexia; later there were uncertain gait, spastic paresis and rigidity, with marked curvature of the vertebral column. Histological examination of the brain and of the cervical thoracic tract of the spinal cord revealed severe lesions in the cortex of the cerebrum and of the cerebellum and in the mesencephalon, pons and thalamus; these are shown in photomicrographs and compared with the same tissues from normal controls.—F.E.W.

Franklin, M. C. (1953). **Vitamin D requirements of sheep with special reference to Australian conditions.** — *Aust. vet. J.* **29,** 302-309. **3864**

Response to vitamin D supplementation by weaner sheep in Tasmania and New South Wales has varied considerably from year to year. During the winter of 1947 in Tasmania and the spring of 1948 and 1949 in the County of Cumberland, N.S.W., cull Corriedale weaners and small poorly developed Merino weaners, respectively, showed normal growth and weight gains following vitamin D supplementation whilst running on green oats. Untreated weaners in both cases stopped growing, had depressed blood calcium and blood phosphorus levels and some deaths occurred. Some animals developed symptoms of rickets. In Tasmania during 1947 stud ewe and ram weaners receiving a hay supplement whilst on pasture showed no effect following vitamin D supplementation. Again, in 1948, no response was obtained by supplementing good conditioned weaners running on green oats grown on land which previously carried a heavy subterranean clover crop. In 1949-50 only poor conditioned weaners responded to vitamin D.

Generally no clear indication of vitamin D requirements of weaners has emerged from these experiments, but it appears that supplementation with the vitamin is warranted in Tasmania during the winter months at least where poor-conditioned weaners are running on green oats for several weeks. Response will be greater where the grazing is adequate for fast growth and when long periods of wet overcast weather occur early in winter. Autumn born lambs may benefit in Southern N.S.W. but spring

born lambs will only respond when soil calcium and phosphorus levels are low as was the case in the N.S.W. experiments described.

—P. K. Briggs.

Ewer, T. K. (1953). **Vitamin D requirements of sheep.**—*Aust. vet. J.* **29,** 310-315. **3865**

In this review of present day knowledge of vitamin D requirements of sheep Ewer deals with the symptoms of avitaminosis D in sheep, the association of rickets with grazing upon green oats, and the efficacy of naturally occurring vitamin D_3, as present in cod-liver oil, and vitamin D_2 (calciferol) in the prevention of rickets. The exact requirements of these is not known. Signs of avitaminosis D are exhibited most markedly by ram lambs. Geographically rickets may be anticipated wherever winter sunshine has an incident angle of 35° or less, but the field incidence of avitaminosis D is also influenced by "sky-line", and supplementation with vitamin D rich material, such as hay. Phytic acid in cereals, a substance present in yeast, and a rachitogenic factor present in green feed have been identified as antivitamin D factors.

E. discussed work on the mode of action of vitamin D in other animals and in sheep, and mentioned the strong influence on avitaminosis D in sheep of the levels of calcium and phosphorus in the diet. Most Australian soils are phosphate-deficient.—P. K. Briggs.

Green, R. J. (1954). **Some field observations on the effect of vitamin D supplements in sheep.**—*Aust. vet. J.* **29,** 316-325. **3866**

Vitamin D_2 and vitamin D_3 supplements with weaner sheep and vitamin D_2 supplement with young beef calves generally gave little measurable response in trials in 1951 and 1952 in Tasmania. In one of 10 trials of vitamin D supplementation of weaners there was an increase in blood phosphate levels. In one other trial blood calcium and blood phosphorus levels were raised and in a flock which showed definite clin. symptoms of vitamin D deficiency a definite weight increase resulted. In spite of the variability of the results G. considers that in Tasmania stud weaners and flock ewe weaners, particularly if running on green-feed oats in winter, should receive a vitamin D supplement as an insurance against unthriftiness.

—P. K. Briggs.

Hengge, H. & Morath, G. (1953). **The influence of irradiated ergosterol products on the blood calcium level.**—*N.Z. vet. J.* **1,** 165-166. **3867**

The authors discussed relationships between dehydrotachysterol and other vitamin D_2 products with regard to toxicity. They reported the raising of bovine serum calcium levels after s/c or i/v injection of the drug.

—John Seamer.

Brüggemann, J., Bronsch, K. & Schmitt, H. (1953). Über den inneren und äusseren Stoffwechsel des gesunden und kranken Haustieres: II. Schilddrüsen- und Nebennierenrindenfunktionstest an wachsenden Schweinen. **[Metabolism of healthy and diseased animals. II. Function test of the thyroid and adrenal glands of growing pigs.]** — *Zbl. VetMed.* **1,** 63-69. [English and French summaries.] **3868**

Ten castrated male, and 7 female piglets of three different breeds were injected with an iodine preparation, and its excretion through the thyroid followed. Three groups on different rations showed a very similar excretion rate, a fourth group receiving added chalk excreted the iodine significantly faster. Adrenal activity was estimated from the 17-ketosteroid content of the urine, which throughout varied little from 3·9 mg./day in 16 of the piglets, but was only 1·6 mg. in the 17th, which was an unthrifty pig.—F. L. M. Dawson.

Silberberg, R. & Silberberg, M. (1954). **Joint disease in mice "thyroidectomized" with radio-iodine I^{131}.**—*Proc. Soc. exp. Biol., N.Y.* **85,** 448-450. [Authors' summary modified.] **3869**

In DBA mice that had been treated when one month old with a single dose of 200 μc of I^{131}, articular lesions were observed 5–17 months later which differed from the degenerative joint disease occurring spontaneously in aging mice. Males were more susceptible than females. In males, there was a strong positive correlation between the incidence of hyophyseal tumours induced by the isotope and the incidence of articular lesions; in females this correlation was less obvious.

Saatcioglu, S. & Atasoy, H. (1953). Experimentell-therapeutische Untersuchungen über den Elektroschock beim Diabetes mellitus. **[Electric shock treatment of diabetes mellitus in dogs and rabbits.]**—*Wien. tierärztl. Mschr.* **40,** 725-728. [English, French and Italian summaries.] **3870**

The authors recorded successful treatment of advanced diabetes mellitus in dogs and rabbits by application of electric shock therapy, at 70 volts, 50 cycles.—W. S. Marshall.

Anon. (1953). **The major metabolic fuels. No. 5 of a series of symposia sponsored by the**

Biology Department, Brookhaven National Laboratory. pp. 234. Upton, New York: Brookhaven National Laboratory. $1.80. **3871**

This publication is well produced, and after introducing the production, disposal, and regulation of the blood glucose, proceeds to discuss the rate of glucose utilization, hormonal controls, new metabolic pathways, and fatty acids and ketone bodies.—D. S. PAPWORTH.

See also absts. **3903** (ascorbic acid content of the blood of Thoroughbred horses); **3950** (report, Australia); **3965** (book, breeding, nutrition and husbandry of farm animals).

DISEASES, GENERAL

MINETT, F. C. (1954). **Dissemination of animal disease in India. Role of man and of carrion feeders.**—*Brit. vet. J.* **110,** 19-24. **3872**

The author described observations on the speed with which large and small carcasses were disposed of under natural conditions by carrion-feeding birds and mammals, and illustrated by photographs the way in which vultures devoured skinned and unskinned buffalo carcasses. It is not unusual for vultures to clamber into the body cavity to get at the internal organs, becoming greatly fouled in the process. They wash afterwards in neighbouring water pools, and can bring about gross contamination if they have been feeding on animals which died from septicaemic conditions.

For tropical serum-producing institutes which have difficulty in disposing of large numbers of uninfected carcasses, the author recommended that they should simply be skinned and left in an enclosure for disposal by vultures, the bones being removed and sold at intervals. This method is economical.—A.S.

ROGNONI, G. (1954). Condizioni climatiche ed infezioni neonatali dei vitelli. (Nota preliminare.) **[Influence of climate on the incidence of diseases of new-born calves.]**—*Atti Soc. ital. Sci. vet., Cortina d'Ampezzo.* 1953. **7,** pp. 877-884. [English and French summaries.] **3873**

R. attempted to relate the incidence of deaths in Northern Italy from enteritis associated with *Bact. coli* or from pneumonia amongst 1,572 calves, born over a period of 2 years, to the ambient temperature, the relative humidity and the barometric pressure. Maximum mortality was associated with a temperature of 20°C. or over, and relative humidity of more than 80%.—R.M.

TRUM, B. F., HALEY, T. J., BASSIN, M., HEGLIN, J. & RUST, J. H. (1953). **Effect of 400 fractional whole body γ-irradiation in the burro** (*Equus asinus asinus*). — *Amer. J. Physiol.* **174,** 57-60. **3874**

The overall response of the donkey to 400 r daily exposure to CO^{60} γ-ray whole-body irradiation did not differ from the response obtained with single exposure to high doses of such radiation except that the damaging effects and lethality were accelerated, and were similar to those observed in other animal species. A pronounced hyperferraemia was observed after the first 400 r exposure which increased until the 6th irradiation. The platelets of the donkey appeared to be more radio-resistant than those of other species.—A. ACKROYD.

HEIDRICH, H.-D. (1954). Zur Glaukomdiagnostik beim Hund. **[Apparatus for the diagnosis of glaucoma in dogs.]**—*Mh. VetMed.* **9,** 154-156. **3875**

A description of a tonometer for the measurement of intra-ocular pressure.—A.S.

TONGE, J. I., INGLIS, J. A. & DERRICK, E. H. (1953). **Regional non-bacterial suppurative lymphadenitis and its relationship to "cat-scratch disease".**—*Med. J. Aust.* July 18th, 81-85. **3876**

A description of the clinical and pathological features of a disease in human beings, believed to be identical with "cat-scratch disease". The authors discussed the aetiology of the disease and included 16 case histories.

—IAN DAVIDSON.

MCSHERRY, B. J., FERGUSON, A. E. & BALLANTYNE, J. (1954). **A dissecting aneurism in internal hemorrhage in turkeys.**—*J. Amer. vet. med. Ass.* **124,** 279-283. **3877**

The authors described a condition that caused sudden deaths in 7–16 week old turkey poults, usually affecting well grown birds that were receiving a high protein diet. In the affected birds there was a rupture of the aorta, situated between the external iliac and sciatic arteries and associated with a dissecting aneurysm.—E. A. GIBSON.

See also abst. **3962** (book, control of communicable diseases).

POISONS AND POISONING

BAHNER, C. T. (1954). **Localization of antimony in blood.**—*Proc. Soc. exp. Biol., N.Y.* **86,** 371-373. [Author's summary modified.] **3878**

Labelled stibophen (fuadin) prepared from neutron irradiated antimony trioxide was used in a study of the localization of antimony in the red cell fraction of rat blood. The results were consistent with the hypothesis that the antimony is attached to the globin portion of haemoglobin.

MOESCHLIN, S. & SCHECHTERMAN, L. (1953). Vergleichende Untersuchungen über den therapeutischen Effekt von BAL oder Natriumcitrat bei der experimentellen Bleivergiftung. **[Comparative studies on the therapeutic effects of BAL and sodium citrate in experimental lead poisoning.]** — *Schweiz. med. Wschr.* **82,** 1164-1165. **3879**

In g. pigs with subacute lead poisoning produced by i/p inj. of a total of 240 mg. of lead nitrate per kg. body wt. over a period of 8 days, treatment with BAL (British antilewisite) was ineffective even when started immediately after the first inj. of lead, and appeared to enhance its toxicity. Treatment with 5% sodium citrate (2 doses of 4 ml./kg. body wt. daily by stomach catheter for 14 days and a single dose of 4 ml./kg. daily from the 15th–21st days) gave results that were considered satisfactory; *viz.* of 20 treated, 4 survived and were in very good condition after 40 days; the other 16 died between the first and 27th days, their av. survival time being 11·5 days. The av. daily loss of wt. was only 1·2 g. per day as compared with 5·4 g. in untreated controls and 5·9 g. in the BAL-treated group.

The authors suggested that sodium citrate treatment could therefore be recommended for lead poisoning in human beings and gave indications as to dosage.—F.E.W.

AUDI, S. & UHLIK, B. (1953). Otrovanja fosfinom. **[Zinc phosphide poisoning in domestic animals.]**—*Vet. Glasn.* **7,** 336-344. [In Croat. German summary.] **3880**

The incidence of zinc phosphide poisoning in farm animals has increased since it has been in use as a rat poison. Fowls and pigs are most frequently affected in Yugoslavia, but there are reports of poisoning also in horses, cattle, dogs and cats. The authors use Scherer's test, emphasizing the need to moisten the material with 10% cadmium sulphate, which binds the sulphuretted hydrogen present in the organic tissues.—I. MARTINI.

CARTER, R. H., HUBANKS, P. E., POOS, F. W., MOORE, L. A. & ELY, R. E. (1953). **The toxaphene and chlordane content of milk from cows receiving these materials in their feed.** —*J. Dairy Sci.* **36,** 1172-1177. **3881**

When cows ingested less than 0·5 mg. of toxaphene (chlorinated camphene) per kg. body wt. daily or of chlordane (a chlorinated naphthalene derivative), measurable quantities of the insecticides were not excreted in the milk. When 1·4 mg. of toxaphene per kg. body wt. was added to the food, they excreted 0·5 p.p.m. in the milk, but this intake was higher than that which would result from feeding lucerne that had been sprayed at the rate of 1·5 lb./acre. —A. SEAMAN.

JUNG-YI TUNG SUN & YUN-PEI SUN. (1953). **Microbioassay of insecticides in milk by a feeding method.**—*J. econ. Ent.* **46,** 927-930. [Authors' summary modified.] **3882**

The authors described a microbioassy method for the determination of dieldrin and other chlorinated hydrocarbon insecticides in milk by direct feeding of house flies with homogenized milk. The results are obtained in parts per million of toxicants by comparing the mortality of flies in treated samples against the mortality in standards which are prepared by adding known amounts of the same toxicant to an untreated check sample. This method can detect quantities as low as 0·1 p.p.m. of dieldrin or aldrin, 0·2 p.p.m. of lindane, 0·5 to 0·6 p.p.m. of isodrin or endrin and 1·4 p.p.m. of D.D.T. in milk.

TREDOZI, A. (1953). Il D.D.T. è tossico per i polli. **[D.D.T. poisoning in a flock of fowls.]** —*Nuova Vet.* **29,** 141-143. **3883**

An account of D.D.T. poisoning in a flock of 45 fowls, with one death, following the liberal application of liquid D.D.T. to the walls and perches of the fowl house and copious dusting of the skin of the birds, and the floors with the powder, to control louse infestation. Nervous symptoms were accompanied by eczematous skin lesions. T. stated that absorption took place mainly through the skin, favoured by the high solubility of D.D.T. in the subcutaneous layer of fat.—F. R. PAULSEN.

BEŁTOWSKI, M. (1953). Przypadek zatrucia łubinem. **[Lupin poisoning in horses and cattle.**—*Méd. vét., Varsovie.* **9,** 501-502. [In Polish.] **3884**

An account of lupin poisoning affecting 21 horses and 73 cattle.—J. R. MITCHELL.

ANON. (1954). **Investigations into the etiology and control of enzootic (toxaemic) jaundice of sheep. Report of the Investigation Committee for the year 1952/53.**—*Aust. vet. J.* **30,** 182-184. **3885**

Merino sheep were less susceptible to poisoning by *Heliotropium europaeum* than crossbred sheep. This was probably due to more selective grazing by the former, leading to a lower consumption of the plant, and to their different reaction to its hepatotoxic alkaloids. A suggestion that dietary supplementation with molybdenum increased susceptibility to heliotrope poisoning was not confirmed. Work continued on identification of the alkaloids present in the plant and their effects when administered to rats. Acute and delayed effects of the alkaloids and their modification by diet were examined.

The role of chronic copper poisoning in the production of the disease was further studied. Sheep grazed on pasture treated with molybdenum alone had much smaller increases in liver copper levels than those grazing on untreated pasture. Feeding experiments with sheep revealed that for a given molybdenum intake the effectiveness with which copper accumulation in the liver is prevented is proportional to the amount of inorganic sulphate in the diet.

In field observations on small numbers of animals it was difficult to determine the relationship between poisoning by copper and by heliotrope. The incidence of haemolytic crises in outbreaks of heliotrope poisoning appears to vary from 5% to 9%. All except one of the confirmed and suspected outbreaks of chronic copper poisoning occurred on improved subterranean clover pasture. In one case sheep became affected after a prolonged train journey from a property on which copper poisoning had occurred on subterranean clover pasture.

—D. C. BLOOD.

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

MILLS, A. M. (1954). **Newer treatments employed in cattle practice.**—*Vet. Med.* **49,** 57-60. **3886**

A clinical article, with notes on methods of treatment used in the U.S.A. for mastitis, retention of the placenta, ketosis, sterility, prepartum vaginal prolapse and leptospira infection in cattle. Reference was made to the following drugs:—cortisone, progesterone, and to a chick embryo freeze-dried vaccine for leptospirosis.

—W. S. MARSHALL.

BROWN, R. & SCHIRMER, R. G. (1954). **Results with the clinical use of kaopectate with neomycin in bacterial gastroenteritis.**—*Vet. Med.* **49,** 120-121 & 122. **3887**

The authors stated that kaopectate (a proprietary mixture of kaolin and pectin) with neomycin, given orally, produced good results in gastro-enteritis in a small number of dogs so treated; they attributed the disease to bacteria, mentioning several species as being involved.

—A. ACKROYD.

SWEET, G. B., ROMOSER, G. L. & COMBS, G. F. (1954). **Further observations on the effect of sulfaquinoxaline, P-aminophenylarsonic acid, and oxytetracycline on blood clotting time in chicks.**—*Poult. Sci.* **33,** 430-432. **3888**

In chicks fed a ration containing neither lucerne meal nor added vitamin K, the addition of the test chemicals alone, apart from oxytetracycline (terramycin), or combined, gave increased blood clotting times. Lucerne meal or menadione bisulphite restored these times to normal.—D. POYNTER.

EDWARDS, S. J. (1953). **A rational basis for the application of antibiotics in therapy.**—*Proc. XVth Int. vet. Congr. Stockholm.* 1953. Pt. I., Vol. 2. 1103-1108. Pt. II. Discussion: pp. 403-404. [In English. French and German summaries.] **3889**

The choice of antibiotic must depend on the results of *in vitro* and *in vivo* tests against specific infections and on a knowledge of its persistence in the blood or tissues. E. discussed additional factors which may tend to detract from the therapeutic efficiency of antibiotics against staphylococcal mastitis.

In cows with staphylococcal mastitis, kept in an isolation unit, and treated with either penicillin, aureomycin, or streptomycin, with strict precautions at milking time, about 70% were freed from infection as compared with 40% with treatment in the cow byre. Rapid re-infection therefore appears to play an important role. Moderate or advanced fibrosis of the affected quarter may prevent the antibiotic from contacting the infecting staphylococci within the udder. Initial or acquired resistance of the infecting staphylococci to the antibiotic accounted for failure in only one out of 12 cases;

the resistant strain was of different phage type and resembled strains from human beings.

—S. F. M. DAVIES.

JAWETZ, E., GUNNISON, J. B. & COLEMAN, V. R. (1954). **Observations on the mode of action of antibiotic synergism and antagonism.**—*J. gen. Microbiol.* **10,** 191-198. [Authors' summary slightly modified.] **3890**

Inactive analogues and degradation products of active antibiotics failed to participate in either synergistic or antagonistic antimicrobial action in combination with active antibiotics.

Streptobiosamine hydrochloride contaminated with 2–3% (wt. for wt.) streptomycin was synergistic with other antibiotics because of the active streptomycin present. The ratio of the smallest amount of antibiotic participating in synergism to that having independent antimicrobial activity varied with the drug and the micro-organism. Synergism with another antibiotic usually required from one twentieth to one third of the minimal inhibitory concentration of an antibiotic when acting alone. Streptomycin, however, in one thousandth of the minimal inhibitory conc. was synergistic with penicillin in its action on a strain of *Streptococcus faecalis.*

JAKSCH, W. (1954). Blutspiegel-Bestimmungen nach l-Ephenamin-Penicillin-Gaben bei Pferd, Rind und Hund. **[Penicillin blood levels following the injection of the benzylpenicillin salt of l-ephenamin (*l*-N-methyl-1,2-diphenyl-2-hydroxy-ethylamine) in horses, cattle and dogs.]**—*Mh. Tierheilk.* **6,** 11-17. **3891**

J. stated that, using suitable doses of penicillin in conjunction with *l*-ephenamin, it is possible to maintain therapeutically-active levels of penicillin in the blood-stream in dogs, horses and cattle, particularly in dogs.

—F. R. PAULSEN.

TALMAGE, R. V., MONROE, R. A. & COMAR, C. L. (1954). **A survey of the effect of phenothiazine on uptake of radioiodine by the thyroids of farm animals.**—*J. Anim. Sci.* **13,** 480 - 482. [Abst. from authors' summary.] **3892**

The authors pointed out that the feeding of some commercial phenothiazine preparations results in a reduced thyroid uptake of injected radio-iodine in poultry, sheep, pigs, cattle and donkeys, and suggested that this effect may be indicative of an induced hypothyroidism.

BREWSTER, W. R., JR., ISAACS, J. P. & WAINØ-ANDERSEN, T. (1953). **Depressant effect of ether on myocardium of the dog and its modification by reflex release of epinephrine and nor-epinephrine.** — *Amer. J. Physiol.* **175,** 399-414. [Authors' summary modified.] **3893**

The authors showed that diethyl ether exerts upon the myocardium of the dog a direct depressant (negative inotropic) effect which is quantitatively sufficient, in the absence of circulating epinephrine and nor-epinephrine, to produce either a substantial decrease in cardiac output or cardiac arrest at blood ether concentrations required for surgical anaesthesia.

A major factor in the safety of ether anaesthesia, in so far as the effect of diethyl ether upon the myocardium is concerned, is the quantitative reflex release from the adrenal medullae and sympathetic nerve endings of epinephrine and nor-epinephrine which, by virtue of their positive inotropic effect upon the myocardium, antagonize the myocardial depressant action of diethyl ether.

GREEN, A. F. (1952). **Themalon : a new canine analgesic and hypnotic.**—*Vet. Rec.* **64,** 803-804. **3894**

G. stated that 3-diethylamino-1 : 1-dithienyl-but-1-ene hydrocloride ("themalon") can replace morphine in canine practice. Mild sedation to deep narcosis was obtained in some 70 dogs according to dosage. The drug acted rapidly with s/c injection and was effective up to 10 hours; with i/v inj. the onset was more rapid and the duration shorter. There was no vomiting. He determined the toxic dosage by each route.—BARBARA G. CLARKE.

See also absts. **3729** (streptomycin in swine dysentery); **3739** (mode of action of streptomycin); **3749** (cytological changes in *Bact. coli* caused by chloramphenicol); **3751** (furazolidone in experimental fowl typhoid); **3762** (resistance of trypanosomes to phenylarsenoxides); **3766** (collargol treatment of trichomoniasis); **3771** (effect of emetine on *Eimeria stiedae*); **3776** (aureomycin in experimental toxoplasmosis); **3785** (cortisone and susceptibility of mice to F. & M. disease virus); **3828-3829, 3838, & 3881-3883** (insecticides); **3843** (action of cortisone on tumours in mice); **3845** (use of cortisone in canine mast cell sarcoma); **3855** (effect of chloromycetin mycelial meal on growth in pigs); **3916** (toxicity of some antibiotics for spermatozoa).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

KNAPP, B. J. & ROBINSON, K. W. (1954). **The role of water for heat dissipation by a Jersey cow and a Corriedale ewe.**—*Aust. J. agric. Res.* **5,** 567-577. [Authors' sum. mod.] **3895**

A Jersey cow and a Corriedale ewe were exposed to a series of controlled environmental conditions in a psychrometric room. In both animals there was an increase in body tempera-

ture, in respiratory rate and volume, and in respiratory and transcutaneous water losses during heat exposure. In the cow, transcutaneous water loss by unit area of skin was of the same order as loss through human skin, and respiratory water loss formed only a fifth to a ninth of the total water loss. In the sheep respiratory water loss reached one-third of the total water loss, and the transcutaneous loss was one-third of that through human skin. It was concluded that the cow maintained a heat balance by a good sweating mechanism, while the ewe relied mainly on the respiratory mechanism.

KANTER, G. S. (1953). **Excretion and drinking after salt loading in dogs.**—*Amer. J. Physiol.* **174**, 87-94. **3896**

After salt loading orally by stomach tube, some dogs corrected the imposed imbalance mainly by drinking (minimal internal regulators), excreted a large volume of near isotonic urine and maintained a higher level of cellular hydration than others which drank less, used their kidneys and body fluids to a greater extent and excreted a hypertonic urine (maximal internal regulators). This difference in drinking pattern was not due to differences in concentrating capacities of the kidneys nor did the kidneys themselves act as primary thirst receptors.—A. ACKROYD.

KANTER, G. S. (1953). **Heat and hydropenia : their effects on thirst and chloride regulation in dogs.**—*Amer. J. Physiol.* **174**, 95-105. **3897**

In dogs in a hot room, with or without access to water, plasma chloride concentrations increased but there were no significant differences in the urine flow or in the low urine chloride concentrations which appeared to be due to the heat *per se* depressing the chloride excretion. High environmental temperature did not limit the ability of the kidney to concentrate exogenous chloride. Drinking played a major role in the regulation of the imbalance in the hot room. Short periods of dehydration primarily affected the extracellular compartment whilst longer periods affected both the extra- and intracellular spaces. Dogs denied water during long periods of dehydration drank 30% more water at the end of the dehydration than did those given water *ad lib.* throughout the dehydration.—A. ACKROYD.

I. ROSS, J. M. (1954). **Development of the follicle population in N-type sheep.**—*Aust. J. agric. Res.* **5**, 484-489. [Author's summary modified.] **3898**

II. FRASER, A. S., ROSS, J. M. & WRIGHT, G. M. (1954). **Development of the fibre population in N-type sheep.**—*Ibid.* 490-502. **3899**

III. ROSS, J. M. & WRIGHT, G. M. (1954). **Kemp succession in N-type sheep.**—*Ibid.* 503-510. **3900**

I. R. described the development of the wool follicle population in the skin of *N*-type sheep for the period from 40 days of gestation to birth. No major differences from the non-*N*-type Romney nor the Merino were found.

He discussed the relationship between type of fibre and type of follicle.

II. The different types of follicles differ in the types of fibres they form when these are classified on the shape of the tip curl, occurrence of medulla, size of crimps, rate of growth, and frequency of shedding as "kemps". The authors analysed the frequency distribution of fibre type and fibre length. *N* and *nr* genes affect the primary more than the secondary follicles in fibre growth rates and frequency of shedding of fibres as kemps.

III. The authors described kemp succession in *N*-type sheep. Shedding was restricted to fibres formed by primary follicles. Primary central follicles differ markedly from primary laterals in the frequency with which they shed their fibres. Differences between genotypes in total kemp frequency were highly significant. The proportion of shed fibres of any type is a characteristic of the type of fibre rather than the genotype.—A. G. LYNE.

HARTMANN, R. C. & CONLEY, C. L. (1952). **Studies on the initiation of blood coagulation. III. The clotting properties of canine platelet-free plasma.**—*J. clin. Invest.* **51**, 685-691. [Authors' summary slightly modified. For part II, see *V.B.* **21**, 853.] **3901**

Platelet-free plasma was prepared from the blood of dogs without the use of anticoagulants by means of high-speed centrifugation at low temperature using silicone-treated apparatus. Platelet-free plasma obtained from normal dogs usually remained fluid when stored at 37°C. in silicone-treated tubes, but clotted on contact with crushed glass. The rate of clotting was directly related to the glass surface area. Haemophilic dog plasma from which the platelets had been removed did not clot even when stored in contact with crushed glass. These observations support the view that the clot accelerating effect of glass surfaces is mediated by a "plasma thromboplastin". This factor is apparently deficient in haemophilia.

STEFANINI, M. (1954). **Basic mechanisms of hemostasis.**—*Bull. N.Y. Acad. Med.* **30**, 239-277. [71 refs.] **3902**

With the multiplicity of hypotheses and the conflicting experimental findings there is no firm theoretical basis for interpreting the mechanisms of haemostasis. S. presented a lengthy survey of the vascular, platelet, blood-coagulation, autocatalytic, anticoagulant, and fibrinolytic mechanisms, which are very closely integrated. Present knowledge is too limited to evaluate the role of fibrinolysin in the normal haemostatic process.—W. R. Bett.

Costa, A. & Ribeiro, O. F. (1952). Sôbre o teôr de ácido ascórbico no sangue total de eqüinos (P.S.) da Vila Hípica do Jockey Club de São Paulo. **[Ascorbic acid content of the blood of Thoroughbred horses.]**—*Rev. Fac. Med. vet., S. Paulo.* **4,** 513-522. [English summary.] **3903**

The average ascorbic acid content of the blood of 117 Thoroughbred horses in Brazil was $0{\cdot}633 \pm 0{\cdot}013$ mg.%. There was no significant difference between mares and stallions.—R.M.

Schambye, P. (1952). Bestemmelse af hjertets minutvolumen hos får med Hamilton's injektionsmetode. **[Determination of the cardiac output of sheep by the injection method described by Hamilton** ***et al.*****]**—*Nord. VetMed.* **4,** 1148-1172. [In Danish. English and German summaries.] **3904**

S. described a method for estimating the cardiac output of sheep, based on the concentration of T-1824 (Evans blue dye) in the blood following i/v injection of the dye. The cardiac output varied between 3·5 and 7·9 l., averaging 112 ml./kg. body wt. The time taken for the dye to reach the carotid artery from the jugular vein averaged 12 sec. S. found that pentobarbitone sodium (nembutal) anaesthesia had no significant effect on cardiac output and circulation time.—H. Boyd.

Bennett, H. S. & Porter, K. R. (1953). **An electron microscope study of sectioned breast muscle of the domestic fowl.**—*Amer. J. Anat.* **93,** 61-105. **3905**

A detailed account of muscle components in the contracted and relaxed state, together with a number of informative photographs. The recorded findings, most of which confirmed previous work, included an interesting account of the structure of sarcoplasm.

—W. M. Goodchild.

Hoffmann, G. (1953). Beitrag zur Innervation des Kniegelenkes des Pferdes. **[Innervation of the stifle joint in the horse.]**—*Mh. VetMed.* **8,** 569-571. **3906**

The medial aspect of the stifle joint of the horse is innervated by branches of the saphena and obturator nerve, running in close proximity to the femoral artery. H. discussed neurectomy.—C. W. Ottaway.

Campbell, J. J. (1954). **The surgical anatomy of the perineum of the mare.**—*Irish vet. J.* **8,** 52-53 & 56-58. **3907**

C. described the surgical anatomy of the musculature of the perineum of the mare.

See also absts. **3963** (book, anatomy); **3964** (book, biochemistry of nucleic acids).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

Rose, G. A. (1954). **Canadian meat inspection in relation to public health.**—*Canad. J. comp. Med.* **18,** 168-176. **3908**

R. gave an account of the duties of the Meat Inspection Service in Canada, dealing with the subject under the following headings:—Veterinary *ante-mortem* inspection; Veterinary *post-mortem* inspection; Sanitation; Product and processing inspection; Laboratory inspection; Control and destruction of condemned material; Labelling and marking; Veterinary certification of meat and meat food products for export; Inspection of meat and meat food products offered for importation. The principal diseases of meat-producing animals transmissible to man are TB., brucellosis, anthrax, *Erysipelothrix rhusiopathiae* infection, cysticercosis and trichinosis. Of 6,081,899 animals slaughtered in 1938-39, 0·60% were condemned as were portions of 2,439,421, the figures for 1952-53 being 13,084,059, 0·60% and 3,877,537.

—R. Gwatkin.

Milne, A. H. (1953). **The differentiation of sheep and goat carcases.**—*East Afr. med. J.* **30,** 489-490. **3909**

W. pointed out that an acromion is present on the spine of the scapula of the goat, but is absent from the scapula of the sheep. By means of this difference it is possible to distinguish the carcass of a goat from that of a sheep when that bone is available.—R.M.

Milne, F. N. J. (1953). **The effect of benzene hexachloride in poultry feed on meat and egg quality.** — *Qd J. agric. Sci.* **10,** 214-221. [Author's summary modified.] **3910**

A commercial form of benzene hexachloride dust (12·5% γ-isomer) and a deodorized form (99% γ-isomer) were each fed to poultry in an all-mash ration at levels of 5 p.p.m. and 25 p.p.m. of the γ-isomer to study the effect on meat and egg quality.

The flesh of cockerels became tainted within 5 weeks and 7 weeks in the groups fed at 25 and 5 p.p.m. levels respectively. No taint was found after 16 weeks' continuous feeding in the group fed deodorized B.H.C.

Eggs of pullets were tainted after 4 weeks and 6 weeks in the groups fed at 25 p.p.m. and 5 p.p.m. levels respectively. In the two groups fed deodorized B.H.C., at 25 p.p.m. and 5 p.p.m., eggs were tainted after 16 and 18 weeks respectively.

See also absts. **3731** (industrial anthrax); **3834** (trichinosis in Canada); **3835** (control of trichinosis in pork by gamma irradiation of pork); **3949** (report, Canada); **3962** (book, communicable disease control).

REPRODUCTION AND REPRODUCTIVE DISORDERS

CARETTA, A. & OLIVARI, G. (1954). La fecondazione artificiale uterina nelle bovine e interpretazione dei risultati. [**Artificial insemination of cattle by the injection of semen direct into the uterus.**]—*Atti Soc. ital. Sci. vet., Cortina d'Ampezzo.* 1953. **7,** pp. 306-320. [English and German summaries pp. 311-312.] Discussion: p. 320. **3911**

Thirty-six cattle were inseminated by the intra-uterine and 27 by the deep cervical method. The results, checked and re-checked by pregnancy diagnosis, indicated a conception rate to first insemination of 66% and 59% respectively, a difference considered not significant. Of 16 cows not holding to the intra-uterine method, 7 returned between the 39th and 70th days, whereas of 13 not holding to the deep cervical method, 9 returned within 19–25 days and 3 from 40–44 days. The authors considered this latter difference significant and suggested that intra-uterine insemination leads to an increased incidence of early foetal death.
—F. L. M. DAWSON.

MARDEN, W. G. R. (1954). **New advances in the electroejaculation of the bull.**—*J. Dairy Sci.* **37,** 556-561. [Abst. from author's summary.] **3912**

M. described a technique of electro-ejaculation which, he suggested, could be used as a routine for the collection of semen for artificial insemination. Ejaculation is obtained without requiring the bull to mount a teaser animal.

A cylindrical electrode containing four longitudinal metallic strips is placed entirely inside the rectum. The electrodes are connected in pairs 180° apart. Ejaculation is obtained by the use of an electric pulse. The wave form and frequency of this pulse are critical. Spike or square wave pulses will not cause either erection or ejaculation. The best results have been obtained by the use of a sine wave pulse. Ejaculation was obtained over a frequency range of 12 to 70 cycles, the best results being obtained between 20 and 30 cycles. Erection of the penis occurred in most bulls only over a frequency range of 15 to 35 cycles, the best results being obtained between 20 and 30 cycles.

Electro-ejaculation causes a natural fractionation of the ejaculate. The accessory gland fluids are obtained first and can be discarded. The spermatozoa can then be obtained in a concentrated form.

No harmful effects had been observed in two bulls on which this technique had been used for routine collection of semen for 12 months.

CAMPBELL, R. C. & EDWARDS, J. (1954). **Semen diluents in the artificial insemination of cattle.** [Correspondence.] — *Nature, Lond.* **173,** 637. **3913**

In an experiment involving the artificial insemination of 68,713 cows with semen from 134 bulls, the use of egg yolk phosphate + penicillin as the seminal diluent improved the conception rate by 9·3%, and egg yolk phosphate alone improved it by 5·5% when compared with egg yolk citrate alone. Egg yolk citrate + sulphanilamide, penicillin and streptomycin improved the conception rate by 6·8% compared with egg yolk citrate alone. In spite of the greater improvement in the conception rate with egg yolk phosphate + penicillin, egg yolk citrate + sulphanilamide, penicillin and streptomycin has certain advantages (visibility of spermatozoa) over egg yolk phosphate and gives an increase in conception rate which is of considerable economic importance.—A. ACKROYD.

ROTHSCHILD & BARNES, H. (1954). **Osmotic pressure of bull semen diluents.** [Correspondence.]—*Nature, Lond.* **173,** 636-637. **3914**

The authors reported the freezing point depression of bull seminal plasma and its usual diluents, measured by the micromethod described by Ramsay. The mean value for 40

determinations for bull seminal plasma was −0·53. The osmotic pressure of the diluent egg yolk citrate buffer containing 0·15% sulphonamide can be made the same as that of bull seminal plasma by mixing equal volumes of egg yolk and a 2·875% solution of sodium citrate made up in water containing 0·3% of sulphonamide and brought to pH 6·8 with 5·6% citric acid whilst that of the diluent egg yolk phosphate buffer containing 0·15% sulphonamide can be made the same by mixing equal volumes of egg yolk and phosphate buffer (2 g. of $Na_2HPO_4 \cdot 12\ H_2O$, 0·2 g. KH_2PO_4 + 75 ml. of water containing 0·3% sulphonamide). The concentrations in which penicillin and streptomycin are normally added to diluents, have almost no effect on the osmotic pressure of the diluent.—A. Ackroyd.

Blackshaw, A. W. (1953). **The motility of ram and bull spermatozoa in dilute suspension.**—*J. gen. Physiol.* **36,** 449-462. [Abst. from author's summary.] **3915**

Ram and bull spermatozoa suspended in a glucose-sodium chloride soln. rapidly lose motility at relatively high dilns. The substitution of chloride-free diluents does not alter the phenomenon. It can, however, be partially prevented by the addition of supernatants of either ram or bull semen, or of egg albumen, plasma albumin, plasma γ-globulin, starch or glycogen.

The motility of ram spermatozoa is greatly reduced by washing them 6 times and is not restored by the addition of ram seminal plasma, though the head agglutination is reversed. Both head agglutination and loss of motility in 4 times washed ram and bull spermatozoa can be reversed by the addition of seminal plasma. Potassium chloride at 0·005 M. solution partially restores motility in 4 times washed ram spermatozoa, but not in bull spermatozoa similarly treated.

White, I. G. (1954). **The toxicity of some antibacterials for bull, ram, rabbit and human spermatozoa.**—*Aust. J. exp. Biol. med. Sci.* **32,** 41-48. [Author's summary modified.] **3916**

In studies of the motility of diluted bull, ram, rabbit and human spermatozoa over a 4-hour period at 37°C. it was found that:—Penicillin was not toxic up to 5,000 μg./ml. to the spermatozoa of any species. Streptomycin at 5,000 μg./ml. tended to depress the motility of ram spermatozoa but not of the other species. Sulphanilamide at 5,000 μg./ml. adversely affected human spermatozoa but 1,000 μg./ml. was innocuous. No other effects were seen. Aureomycin was tolerated by the spermatozoa of all four species in concentrations up to 100 μg./ml., five times this concentration being toxic. Chloramphenicol was innocuous to ram and bull spermatozoa in concentrations up to 1,000 μg./ml. and to rabbit and human spermatozoa at a level of 200 μg./ml. A 5-fold increase in conc. was toxic in each case.

Metabolic studies over 2 hours at 37°C. revealed that:—Chloramphenicol at 5,000 μg./ml. greatly depressed the respiration and glycolysis of ram and bull spermatozoa. Aureomycin at 500 μg./ml. stimulated the respiration of ram spermatozoa and depressed glycolysis, but had a reverse effect in each case on bull spermatozoa.

Bonadonna, T., Berg, E., Olgiati, L. & Pozzi, G. C. (1954). Osservazioni preliminari sul contenuto in fruttosio, sulla fruttolisi dello sperma di *"Bos taurus"* e sulle correlazioni con la fecondità. (Nota preventiva.) [**Preliminary observations on the content of fructose, on the fructolysis of *"Bos taurus"* semen and on the correlations with fertility. (Preliminary note.)**]—*Zootec. e Vet., Milan.* **9,** 70-82. [English conclusions.] **3917**

There is a good literary introduction. Numerous ejaculates were studied from 15 bulls, 3–7 years old, and the results were subjected to statistical analysis. Positive correlation was claimed to have been established between fertility, libido, and initial high fructose content. There was no correlation with sperm density. Initial fructose content appeared to show a constant breed variation.

—F. L. M. Dawson.

Roosen-Runge, E. C. (1952). **Kinetics of spermatogenesis in mammals.**—*Ann. N.Y. Acad. Sci.* **55,** 574-584. **3918**

The problem is related to the time and method of maturation of the sperm cells. In the rat and most mammals regular division will produce a large number of spermatozoa at one time, but in human beings differentiation is not regular.—C. W. Ottaway.

Leblond, C. P. & Clermont, Y. (1952). **Definition of the stages of the cycle of the seminiferous epithelium in the rat.**—*Ann. N.Y. Acad. Sci.* **55,** pp. 548-573. **3919**

The authors described the various cell types of the seminiferous epithelium and analysed their activity in the forming spermatozoon. They discussed the function of the Sertoli elements in relation to the stages of the cycle.

—C. W. Ottaway.

CHANG, M. C. & MARDEN, W. G. R. (1954). **The aerial transport of fertilized mammalian ova.** —*J. Hered.* **45**, 75-78. **3920**

Fertilized segmenting rabbit ova were flown from the laboratory of the Worcester Foundation for Experimental Biology at Shrewsbury, Mass., U.S.A. to Cambridge University, England. They were shipped in small phials containing whole blood serum to which penicillin had been added. The phials were kept in thermos flasks together with ice. Young developed from 10% of two-cell ova and from 30% of four-cell ova transplanted. The time lag between collection of ova in the U.S.A. and implantation in England was 27–30 hours.

—E.G.

COLUZZI, G. & BATTISTACCI, M. (1954). Il valore delle prova di Papanicolau durante il cicolo estrale della vacca. [**Application to cows of the method described by Papanicolau for the examination of vaginal smears.**]—*Atti Soc. ital. Sci. vet., Cortina d'Ampezzo*, 1953. **7**, pp. 353-358. [English and French summaries.] **3921**

The authors claimed that their work is on a better quantitative basis than that on this subject published by Garm and Skjerven in 1952. Three hundred oestrous cycles were followed in a group of 10 animals aged 2–8 years. The alteration in the smear was considered to take place rapidly enough to be a practically useful indication of ovulation time.

—F. L. M. DAWSON.

CELLA, F., DOZZA, G. & COLUZZI, G. (1954). Sul valore pratico della reazione di Cuboni nella diagnosi precoce di gravidanza nella scrofa. [**Value of the test described by Cuboni in the early diagnosis of pregnancy in sows.**] *Atti Soc. ital. Sci. vet., Cortina d'Ampezzo*, 1953. **7**, pp. 347-353. [English and French summaries.] **3922**

The high pigment, resin, and phenolic content of urine of sows, and its low oestrogen content indicated that no practical use could be made of the test principle. The application of chromatographic methods was suggested in discussion on the paper.—F. L. M. DAWSON.

WALLACE, L. R., LAMBOURNE, L. J. & SINCLAIR, D. P. (1954). **Effect of pregnant mare serum on the reproductive performance of Romney ewes.**—*N. Z. J. Sci. Tech.* Sect. A. **35**, 421-436. **3923**

The breeding performance of 282 ewes that had been injected with varying quantities of P.M.S. (pregnant mare's serum) 12–13 days *post oestrum* was compared with that of 235 untreated controls. Treatment led to an increase in multiple births, and, despite greater lamb mortality, the lambing percentage (lambs alive at 27 days) improved by up to 32%.

—C. C. BANNATYNE.

THOMOPOULOU, H. & CHOH HAO LI. (1954). **Histological effect of pituitary gonadotrophins on the ovaries of immature Swiss white mice.** —*Acta endocr., Copenhagen.* **15**, 97-100. [In English. Author's summary slightly modified.] **3924**

Highly purified gonadotrophins isolated from sheep hypophyses were injected into immature intact Swiss White mice weighing 6–8 g. In the female, F.S.H. (follicle-stimulating hormone) produced follicle maturation, with signs of atresia and of oestrogen production but with no indication of luteinization. I.C.S.H. (interstitial-cell stimulating hormone) resulted in the appearance of corpora lutea, along with occasional corpora haemorrhagia, and induced ovulation. Synergism between these two hormones was demonstrated.

BAREGGI, G. (1954). Contributo allo studio della patogenesi della sterilità bovina. I. Terapia ormonale delle cisti ovariche. II. Trattamento ormonale delle metriti purulenti. [**Pathogenesis of sterility in cattle. I. Hormone therapy of ovarian cysts. II. Hormone therapy of purulent metritis.**]—*Atti Soc. ital. Sci. vet., Cortina d'Ampezzo*, 1953. **7**, pp. 467-471 & 471-474. [English and French summaries.] **3925**

B. treated 6 heifers, which had been vainly served 20–30 times each, with 1,000 i.u. luteinizing hormone. Although the subjects had begun to develop masculine body characteristics, 5 then held to first service. Twenty cows with small ovaries and no obvious corpus luteum formation, were similarly treated, 15 holding to first service. Seventy cows exhibiting large cysts in one or both ovaries received 1,500 i.u., repeated after 15 days, 60 [eventually] conceiving. No controls appear to have been left. Regarding pyometra *post partum*, B. has found the use of oestrogens—30 mg. oestromenin—much more satisfactory than Lugol irrigations.

—F. L. M. DAWSON.

PLEBANI, R. (1954). Metabolismo del glicogeno nella mucosa dell'utero; effetto da piometra. [**Glycogen metabolism in the mucosa of the uterus in cases of pyometra in cattle.**]—*Atti Soc. ital. Sci. vet., Cortina d'Ampezzo*, 1953. **7**, pp. 508-512. [English and French summaries.] **3926**

The presence of glycogen has been demonstrated in uterine and tubal mucosae (Frei, and Bignardi). The level varies with the stage of the cycle and is greatest in the luteal phase: oestrogens are known to mobilize liver glycogen, progesterone having the opposite effect. P. stained fresh material from 32 random pyometra cases from abattoirs, finding by Langhan's iodine method no glycogen in 10 of them, the open cervix cases with low pus content and no foetal remains. Nine cases had normal glycogen content, 11 rather above normal and 2 very large quantities. P. repudiates the view that high tissue glycogen always accompanies chronic inflammation, and associates it in the organs studied with the presence of a retained corpus luteum. [It is not stated whether such a corpus was present in the 10 glycogen-free animals].

—F. L. M. DAWSON.

BRADEN, A. W. H. (1954). **Infertility in rats and mice following estrogen treatment early in life.** — *Endocrinology.* **55,** 112 - 113. [Author's summary slightly modified.] **3927**

Persistent infertility was induced in female rats by a total dose of 20 or 100 μg. oestradiol dipropionate spread over 4 weeks from the 4th day of life, but a dose of 4 μg. was ineffective. In mice, a total dose of 5 μg. over 4 weeks from the 2nd day of life induced sterility. The infertility was referable to failure of ovulation in most animals, but in some mice the infertility could only be attributed to the cystic glandular hyperplasia that was regularly seen in the endometrium in infertile mice.

JAMES, J. P. (1954). **Infertility in dairy cattle.** —*N. Z. J. Agric.* **88,** 143, 145, 147 & 149-150. **3928**

The seasonal nature of the dairying industry in New Zealand gives a May-June infertility zone and a Nov.–Dec. abortion zone. Trichomoniasis is still a great problem. J. states that a full year is required to eliminate the infection from a herd. Average herd management practice is not well adapted to assist disease control.

—F. L. M. DAWSON.

WILSON, L. (1954). **Sperm agglutinins in human semen and blood.**—*Proc. Soc. exp. Biol., N.Y.* **85,** 652-655. [Author's summary modified.] **3929**

W. reported the presence of sperm agglutinins in the seminal plasma and blood serum of 2 sterile men whose spermatozoa were found to agglutinate in the ejaculate. The sera had antibody titres of 1:80 and 1:20, respectively. Head, tail, and mixed varieties of agglutination were seen in the early stages, but tail agglutination predominated in the larger clumps. Agglutination occurred only in the presence of motile spermatozoa and none was seen in the fresh ejaculate until liquefaction began and active sperm movement developed. Temperature influenced agglutination by its effect on sperm motility. The motility of the clumped spermatozoa was impaired with consequent loss of the ability to penetrate cervical mucus. The clumps could be completely dispersed by mechanical agitation after which the spermatozoa reagglutinated although not quite to the original extent. Complement inactivation did not influence agglutination. The antibody could be removed by absorption.

MORLEY, F. H. W. (1954). **Prenatal loss in Merino sheep.** — *Aust. vet. J.* **30,** 125-182. [Author's summary modified.] **3930**

Analysis of lambing data from Merino ewes in South Africa and at the Trangie Agricultural Experiment Station in Australia, indicated that the incidence of total prenatal failure in pregnant Merino ewes was of the order of 25 to 30%. The extent to which this finding applies generally is unknown. Most of the losses probably occurred later than three weeks after mating. M. described a technique for estimating the importance of prenatal mortality by an indirect method.

PULLIG, T. (1952). **Inheritance of a skull defect in cocker spaniels.**—*J. Hered.* **43,** 97-99. **3931**

P. reported on an apparently recessive lethal cranial defect in highly inbred Cocker spaniel puppies, consisting of "soft spots" caused by failure of the cranial bones to unite during early life.—E.G.

CRARY, D. D. & SAWIN, P. B. (1952). **A second recessive achondroplasia in the domestic rabbit.**—*J. Hered.* **43,** 255-259. **3932**

The authors reported on an autosomal recessive gene in New Zealand White rabbits producing achondroplasia. Unlike the condition described by W. H. Brown & L. Pearce [*V.B.* **16,** 1352] which constituted a lethal factor, the rabbits described here matured and some even mated and conceived. At birth the condition was not clearly distinguishable externally, but was quite distinct by X-ray.—E.G.

FISCHER, H. (1954). Die Letalfaktoren des Pferdes und Schweines. **[Lethal factors in horse and pig.]** — *Tierärztl. Umsch.* **9,** 50-51. **3933**

F. quoted literature on recorded cases. He

listed the anatomical abnormalities present and the major symptoms exhibited.

—C. W. Ottaway.

Roberts, S. J., Kennedy, P. C. & Delehanty, D. D. (1953). **A persistent right aortic arch in a Guernsey bull.**—*Cornell Vet.* **43,** 537-542. **3934**

A 5-year-old Guernsey bull was reported to suffer from chronic bloat but had bred well until changed to a different owner. It then became chronically ill with dilatation of the oesophagus, and bloat. The animal was destroyed and a patent ductus arteriosus was found which together with the right aorta and left pulmonary artery formed a vascular ring that constricted the oesophagus.—J. A. Nicholson.

See also absts. **3950-3951** (reports, Australia); **3952** (report, New Zealand); **3965** (book, breeding, nutrition and animal breeding and husbandry).

ZOOTECHNY

Lockart, L. W. (1954). **Sampling of fleeces for yield, staple length, and crimps per inch measurement.**—*Aust. J. agric. Res.* **5,** 555-567. **3935**

Gradients in yield, per cent. vegetable matter, staple length and crimps per inch were studied in various samples of wool from 26 Merino sheep. L. discussed the relative value of different locations and the value of samples of different sizes from the midside. The correlations obtained from the midside samples of different size indicated little advantage from a sample larger than 40 g.—A. G. Lyne.

Kuhl, P. R., Sheline, G. E. & Alpen, E. L. (1953). **Strontium sulfide depilation of rat skin and the effect of lanolin on depilated skin.** —*J. Lab. clin. Med.* **41,** 913-917. **3936**

Hairless rat skin is obtained by the use of clippers followed by the application of commercially available strontium sulphide paste, this being washed off and lanolin then applied to the skin periodically to prevent injury.

—S. E. Fox.

Klette, H. (1954). Sobre el mecanismo del cebo, castración y lactación hormonales. [**The mechanism of fattening, castration, and the artificial induction of lactation.**]—*Arch. Vet. Pract., Corunna.* **3,** No. 34. pp. Cas 16 - Cas 22. (14 pp.) **3937**

K. discussed the physiological mechanisms of castration, fattening, and induced lactation following the administration of hormone preparations as implants or suspensions, and the utility of the technique for various livestock.

—A.S.

I. Sullivan, J. J. (1954). **The cattle country of the Central Highlands.**—*Qd agric. J.* **78,** 103-113. **3938**

II. Sullivan, J. J. (1954). **The beef cattle of the Central Highlands.**—*Ibid.* 182-186. **3939**

III. Sullivan, J. J. (1954). **Cattle husbandry practices in the Central Highlands.**—*Ibid.* 212-220. **3940**

S. reviewed cattle husbandry in the Central Highlands of Queensland in these three papers.

I. He described the various types of grazing country and gave an account of prevailing practices in the major property improvements, *e.g.* fencing, water supply and timber control by ring-barking and other methods.

II. He described the breeds in use, in the past and at present, and the composition of the herds, and gave an estimate of calving percentages, wastage and turn-off of fattened animals.

III. He gave an account of property and herd management. He listed the parasites (of which cattle tick [*Boophilus*] is the most important) and diseases (bovine contagious pleuropneumonia, blackleg and leptospirosis) and described methods of transport and marketing.

—R. I. Sommerville.

Mawson, W. F. (1954). **Growth rates of beef cattle in tropical Queensland.**—*Qd agric. J.* **78,** 301-307. **3941**

This is an interim report on a growth study made over a period of one year in a region of hot wet summers and cold dry winters. Compared with Zebu-British cross weaners, similar aged British breeds (Shorthorn and Shorthorn-Hereford cross) were at all stages inferior, both in ability to make weight gains under good, and to maintain weight under poor conditions. Definite conclusions cannot yet be drawn. The work is proceeding.—R. I. Sommerville.

Skaller, F., Allen, T. E. & Sheldon, B. L. (1954). **The effect of intensity of daylight on egg production of fowls in cages.**—*Aust. J. agric. Res.* **5,** 578-583. [Abst. from authors' summary.] **3942**

Daylight-intensity readings in two buildings housing fowls in laying-cage batteries varied from 1–8 foot candles at 4.30 p.m. and 7–11 foot candles at 9.30 a.m., in poorly lit

positions, to 16–35 and 65–172 foot candles respectively in well lit positions.

Analysis of records from 170 pullets from selected positions revealed no significant difference in egg production among birds exposed to this range of light intensities.

HARKER, K. W., TAYLOR, J. I. & ROLLINSON, D. H. L. (1954). **Studies on the habits of Zebu cattle. I. Preliminary observations on grazing habits.** — *J. agric. Sci.* **44,** 193-198. [Authors' summary modified.] **3943**

In order to form a basis for any improvements of cattle and pasture management in East Africa it was decided to observe the grazing habits of the local cattle. A review of the literature shows that animals' habits can be influenced by temperature, but no record could be found to indicate the effect on the animals of elevation and an equable climate.

The authors gave a summary of the results obtained during 720 cow-watching hours. Comparing these results with those obtained by other workers it is clear that *Bos indicus* cattle on a high-level plateau under tropical conditions have distinct and unique habits. On the average, during days with 12 hours' daylight 7·7 hours were spent in grazing, 7·2 of which were during daylight; of 5·2 hours spent in ruminating, only 1·2 were during the hours of daylight.

ENGLAND, G. J. (1954). **Observations on the grazing behaviour of different breeds of sheep at Pantyrhuad Farm, Carmarthenshire.**—*Brit. J. Anim. Behav.* **2,** 56-60. [Author's summary modified.] **3944**

E. recorded observations on the grazing behaviour of a Suffolk, a Spanish, a Clun Forest, and a Scottish Blackface sheep over two separate periods, each of 24 hours. He recorded data for the times spent in grazing, chewing the cud, standing and lying, for the number of times each animal lay down, for the number of urinations and defaecations, and for the distances travelled.

See also absts. **3965** (book, breeding, nutrition and husbandry of farm animals); **3966** (textbook, animal breeding and husbandry); **3967** (book, the ancient white cattle of Britain); **3968** (book, cat care).

TECHNIQUE AND APPARATUS

HOLZ, J. (1954). Zellzüchtung, Mikrokinematographie und Elektronenmikrosopie als parasitologische Arbeitsmethoden. **[Cultivation of cells, microcinematography and electron microscopy used in parasitology.** — *Berl. Münch. tierärztl. Wschr.* **67,** 73-77. [English summary.] **3945**

H. commented on the use of modern techniques in parasitological research, with special reference to sarcosporidia and toxoplasms. He discussed briefly culture techniques in minced chick embryo tissue, electron microscopy, and accelerated and retarded microcinematography.—J. E. SMITH.

ORNSTEIN, L. & POLLISTER, S. W. (1952). **Applications of phase microscopy in cytology and electron microscopy.**—*Trans. N.Y. Acad. Sci.* **14,** 194-199. **3946**

Phase and electron microscopy show that even the very best standard cytological fixation is inadequate. The authors gave a detailed description of a suitable technique. Structures are seen by virtue of the effective refractive index differences and do not depend on chemical contamination.—J. A. NICHOLSON.

HEINRICH, H. C. (1954). Kritische Bemerkungen zur Vitamin B_{12}-Bestimmung und Deklaration der B_{12}-Vitamine in Handelspräparaten. **[Critical observations on methods for estimating vitamin B_{12} and on the vitamin B_{12} content of pharmaceutical preparations.]**—*Dtsch. tierärztl. Wschr.* **61,** 93-97. **3947**

The most specific and sensitive methods of vitamin B_{12} estimation are modifications of the flagellate growth test using *Euglena gracilis* var. *bacillaris*. Other micro-organisms give earlier results but, being susceptible to a variety of growth factors, are suitable only for tests on purified samples. Feeding experiments are lengthy and non-specific; chemical estimations, though rapid, have limited application.

—J. E. SMITH.

See also absts. **3741** (staining reaction for the differentiation of virulent and avirulent mycobacteria); **3767** (culture media for *Tr. gallinae*); **3786** (cultivation of F. & M. disease virus on bovine tongue epithelium); **3795** (preservation of vaccinia virus); **3796** (preparation of smallpox vaccine); **3814** (virus cultivation in embryonic mouse tissue); **3844** (culture of venereal granuloma of dogs in the cerebrospinal fluid).

REPORTS

GREAT BRITAIN. (1954). **Myxomatosis. Report of the Advisory Committee on Myxomatosis. Ministry of Agriculture and Fisheries.** pp. 13. London: H.M. Stat. Off. 9d. **3948**

This is the report of an advisory committee representing the economic, scientific and humanitarian interests concerned in the problem of MYXOMATOSIS. There are sections on the history of the disease, immunity, ways of protecting domestic rabbits, and the damage caused by rabbits to agriculture and forestry as compared with the value of the rabbit in trade.

After reviewing the evidence the committee concluded that it was not practicable to prevent the spread of the disease and therefore it should be allowed to run its course, though for humanitarian reasons it should not be deliberately spread. It was particularly important to exterminate the few rabbits remaining in an area after an epidemic, as such an opportunity of complete clearance might never recur. Information and a cheap vaccine should be made available to breeders of domestic rabbits.—A.S.

CANADA. (1954). **Province of Prince Edward Island. Annual Report of the Department of Agriculture for the fiscal year ended March 31st 1953.** pp. 90. Summerside: P.E.I.: The Journal Publishing Co. Ltd. **3949**

The Veterinary Service Report occupies 21 of the 90 pages and deals with veterinary students, exhibitions, Maritime Winter Fair, meetings, laboratory services, butter, cattle, swine, poultry, pullorum disease, importations, routine examinations of specimens from various animals and calls for which professional services were sought. Five practising veterinarians are operating under the Veterinary Service Policy. They responded to 5,442 calls and drove 135,029 miles during the year.—R. GWATKIN.

WESTERN AUSTRALIA. (1952). **Annual report of the Department of Agriculture for the year ended 30th June 1951.** [CLARK, A. L. McK.] pp. 40. Perth: W. H. Wyatt. [Items of veterinary interest pp. 12-14 & 25-26.] **3950**

The tuberculin testing of dairy herds has been largely confined to the South West dairy area. Of a total of 25,170 cattle tested in 390 herds, 738 or 2·93% were positive. The incidence has remained low in retested herds other than in a few in the metropolitan area. The number of poultry flocks under the voluntary control scheme for PULLORUM DISEASE has more than doubled. It is estimated that approx. 70% of heifers bred in the dairying areas are being immunized annually with Strain 19 vaccine against CONTAGIOUS ABORTION.

"REDWATER" in calves in the South West had been identified as LEPTOSPIROSIS due to *L. pomona*. This organism has also been demonstrated in the urine of healthy adult cattle and pigs; it appears that pigs provide a reservoir of infection.

The egg-grown vaccine for INFECTIOUS LARYNGO-TRACHEITIS continues to give satisfactory results; 21,266 birds were vaccinated. MYXOMATOSIS infection of rabbits was introduced at two sites adjacent to the River Avon, the sites being considered suitable for the spread of the disease by mosquito vectors (notably *Aedes comtorynchus*).

The problem of siliceous URINARY CALCULI in sheep is being studied, with special regard to silica intake and output and urine volume. Studies of PHOSPHORUS DEFICIENCY in dairy cows and of COPPER and COBALT DEFICIENCY in sheep are being continued.

Pathological studies have confirmed Murnane's earlier findings that KIMBERLEY HORSE DISEASE is characterized by chronic liver damage. It is considered to result from the ingestion of hepatotoxic plants, recent botanical surveys having incriminated *Crotalaria retusa* and *C. trifoliastrum*. Feeding trials with horses are now in progress in the Kimberley. In addition to these plants, *Atalaya hemiglauca* (formerly regarded as the cause) and *Indigofera enneaphylla* (shown to be the cause of BIRDSVILLE DISEASE) and *I. trita* are being tested.

Serious mortality among sheep from LUPIN POISONING (European type) have, for the first time, occurred in the region where, for upward of 20 years, the ripe seeds of the Western Australian lupin (*Lupinus varius*) have been extensively used as a fodder for sheep.

The investigation of sheep INFERTILITY on subterranean clover pastures has been concerned chiefly with the isolation and chemical characterization of the clover oestrogen.

—H. W. BENNETTS.

WESTERN AUSTRALIA. (1953). **Annual report of the Department of Agriculture for the year ended 30th June 1952.** [HAY, G. K. BARON.] pp. 46. Perth: W. H. Wyatt. [Items of veterinary interest pp. 14-16; 29-30; 39-40.] **3951**

Further progress has been made with the testing for TB. of licensed dairy herds; a total of 21,966 cattle in 359 herds were tested, there being 1·69% positive reactors. The voluntary scheme for the control of PULLORUM DISEASE

has again received further support. A total of 17,273 heifers were immunized against BRUCELLOSIS with Strain 19 vaccine. FOOT ROT in sheep is being controlled and affected properties quarantined. The occurrence, in this State, of VIBRIOSIS in cattle, has been confirmed. Infection with *V. fetus* was demonstrated in three herds in the South West. Further outbreaks of LEPTOSPIROSIS (*L. pomona*) have occurred both in calves and adult cattle. Preliminary observations have indicated that the disease can be controlled by the segregation of pigs, which are a reservoir of infection, and the location of calf pens to exclude drainage from cow yards and piggeries.

Thirteen infection centres were established throughout the South West Division in an endeavour to spread MYXOMATOSIS throughout the rabbit population in the regions concerned; good kills were obtained in limited areas, but general spreading of the disease did not occur.

Measures for the control of keds and lice on sheep have been continued; recently gazetted regulations require all sheep intended for sale off-shears to be dipped before removal from the owner's property.

Biological and chemical methods have been developed for the estimation of genistein, the oestrogenic principle in subterranean clover, the grazing of which causes INFERTILITY in sheep.

A long range experimental project concerned with the effects of phosphorus supplements on fertility and productivity of dairy cows was commenced in August 1951.

Further botanical surveys and a positive feeding trial with 2 horses have indicated that *Crotalaria retusa* is the major cause of KIMBERLEY HORSE DISEASE. Botanical evidence suggests that 3 of the 13 species of *Crotalaria* in Kimberley might be involved.

—H. W. BENNETTS.

NEW ZEALAND. (1953). **New Zealand Dairy Board, Twenty-ninth annual report and statement of accounts for period of 12 months ended 31st July, 1953.** pp. 105. Wellington: New Zealand Dairy Board. **3952**

The report deals largely with the commercial side of dairying and is to a great extent statistical and in tabular form.

Since 1946 the pig population has remained fairly steady although on January 31st 1953 it showed an increase of 11% over the total of 1952.

The average annual incidence of infertile cows in New Zealand dairy herds is about 7% and there seems to be little difference in this percentage between the breeds of Ayrshire, Friesian and Jersey, but in the Shorthorn the incidence may be a little less.

Artificial breeding has been studied since 1936 and has developed on a group basis, *i.e.*, a group of cows that can be serviced by one inseminator—about 800 to 1,000 cows in 15 to 20 herds.

While no definite conclusion can be arrived at, the work seems to indicate that cows not in-calf after artificial insemination are not more difficult to get in-calf than cows not in-calf after natural mating; conception rates under artificial conditions being only slightly lower than under normal conditions.—D. S. RABAGLIATI.

BELGIUM. (1954). Comite voor steriliteitsbestrijding, Veeartsenijschool—Gent. Verslag over het werkjaar 1953. **[Report for 1953 of the Ghent Veterinary College Committee on sterility in livestock.]**—*Vlaam. Diergeneesk. Tijdschr.* **23,** 67-80. [English summary.] **3953**

A high percentage of phosphorus in the ration has a beneficial influence on fertility in cattle. TRICHOMONIASIS in bulls is transmitted by artificial insemination; 90% of infected bulls were cured by treatment with euflavine (trypaflavin) solution and "bovoflavin" ointment (containing an acridine base and a compound of urea and quinoline). In female cattle a mucus titre of 1:10 for *Vibrio fetus* was positive. VIBRIOSIS in bulls was treated the same way as TRICHOMONIASIS. For treatment of post-puerperal purulent METRITIS a combination of streptomycin and penicillin is advocated.

—C. A. VAN DORSSEN.

I. SUDAN. (1954). **Annual report of the Sudan Veterinary Service for the year 1947.** [GLANVILLE, W. H.] pp. 23. Sudan: McCorquodale & Co. (Sudan) Ltd. **3954**

II. SUDAN. (1954). **Annual report of the Sudan Veterinary Service for the year 1948.** [GLANVILLE, W. H.] pp. 22. Sudan: McCorquodale & Co. (Sudan) Ltd. **3955**

III. SUDAN. (1954). **Annual report of the Sudan Veterinary Service for the year 1949.** [GLANVILLE, W. H.] pp. 24. Sudan: McCorquodale & Co. (Sudan) Ltd. **3956**

IV. SUDAN. (1954). **Annual report of the Sudan Veterinary Service for the year 1950/51.** [GLANVILLE, W. H.] pp. 31. Sudan: McCorquodale & Co. (Sudan) Ltd. **3957**

I. The year 1947 was notable for a marked extension of veterinary activities throughout the country. The report mentions no less than 30 diseases dealt with by the staff; those causing the most loss being RINDERPEST and TRYPANOSOMIASIS. The report of the Assistant Director (Research) is included.

II. Bovine TRYPANOSOMIASIS which has been of considerable concern recently has received much attention. Research on the chemotherapeutic and chemoprophylactic value of antrycide (M. 7555) was carried out.

A case of TB. was found in the carcass of a zebu bull slaughtered at el Obeid; a condition previously almost unknown in cattle in the Sudan.

In Kordofan alone over 151,000 doses of vaccine and 26,000 of sera were used to control RINDERPEST, the loss being low.

The report on research indicates that it was not possible to provide sufficient biological products owing to lack of adequate professional staff.

III. For RINDERPEST, attenuated goat virus obtained from Kenya was used successfully for the first time. This report like previous ones includes diseases of animals, trade in livestock and their products, animal husbandry, education, accounts of hospitals and dispensaries, finance and research and indicates the excellent work carried out under most difficult conditions.

IV. This report, owing to changes in the budgetary year, covers 18 months. BOVINE CONTAGIOUS PLEURO-PNEUMONIA, which in 1949 and early 1950 had reached epidemic proportions, in many areas was so reduced as to become almost negligible; 333,844 cattle being vaccinated against it. A slide flocculent test was devised for the diagnosis of this disease and proved satisfactory. The report follows the usual lines of previous years.

—D. S. RABAGLIATI.

U.S.A. (1953). **Research progress at the Illinois Agricultural Experiment Station. Report for 1950-1952.** [RUSK, H. P.] pp. 134. Urbana, Ill.: The University. [Items of veterinary interest pp. 53-76 & 109-116.] **3958**

The three portions of this report of veterinary interest are those on Animal Science, Dairy Science and Veterinary Research.

In each case, there is a summary of the work carried out followed by a number of research "prospects", a list of publications and summaries of theses of research workers.

Research in animal science has been in connexion with factors influencing the growth, fattening and reproductive performance of animals, the nutrition required and the effect of certain environmental conditions on the nutritive value of grain and hay.

In the dairy section, research has mainly been focussed on the efficient conversion of food and forage otherwise unfit for human consumption into the highly nutritious food; milk and its products.

Under Veterinary research study has ranged from such conditions as NEWCASTLE DISEASE in poultry to DOG DISTEMPER, BRUCELLOSIS of pigs, and parasitology; fourteen different investigations being described.

—D. S. RABAGLIATI.

BOOK REVIEWS

GRAY, E. A. (1954). **Microbiology : an introduction.** pp. xii + 175. London: Crosby Lockwood & Son, Ltd. 10s. 6d. **3959**

This small book is a good general introduction to plant and animal microbiology for first-year students. The author explains the broad classification of the micro-organisms, their physiology, culture and reproduction, and, wherever possible, illustrates his points by reference to organisms of practical interest to medicine, agriculture, or industry.

There are good short chapters on the microbiology of soils, inland waters, and the sea, and on the applied microbiology of food, brewing, and silage production.—A.S.

YOUMANS, G. P., DOUB, L. & YOUMANS, A. S. (1953). **The bacteriostatic activity of 3500 organic compounds for *Mycobacterium tuberculosis* var. *hominis*. Review No. 4.** pp. v + 713. Washington, D.C.: Chemical-Biological Coordination Center, National Research Council. $5.00. **3960**

The greater part of this book is devoted to listing the compounds which have been tested *in vivo* and *in vitro* by the authors and their collaborators in the search for substances possessing tuberculostatic activity. The great majority of the compounds revealed no activity under the conditions of the tests, but the authors consider that the publication of their work will have been well justified if as a result further fruitless research by other workers is avoided.

Experimental methods are described, and there is a discussion of the activity of certain groups of compounds in relation to their structure.—A.S.

REICHENOW, E. (1953). Doflein. Lehrbuch der Protozoenkunde. Eine Darstellung der Naturgeschichte der Protozoen mit besonderer Berücksichtigung der parasitischen und pathogenen Formen. II. (Zweite Hälfte):

Sporozoa und Ciliophora. **[Doflein's textbook on protozoology. II. (2nd half.) Sporozoa and Ciliophora.]** pp. iv + 437 + viii. Jena: Gustav Fischer. 6th Edit. DM 23.50. **3961**

This, the second half of volume II of the revised edition of Doflein's great textbook, improves the standards of the two volumes issued earlier [*V.B.* **22,** 2695 & **23**, 3526]. The revision has again been very extensive and the summary of the literature on the Sporozoa and Ciliophora, where considerable recent advances have been made, has been brought almost completely up to date. As in the previous volume the treatment is mainly devoted to the protozoa themselves but pathogenesis is adequately covered and the chemotherapy of some groups is briefly mentioned.

The value of the work has been considerably enhanced by this volume. The quality of the paper has improved with a corresponding improvement in the reproduction of the excellent photographs and drawings, many of which are original.—L. P. Joyner.

Anderson, G. W. [Mayo Professor and Director, School of Public Health, University of Minnesota.] & Arnstein, M. G. [Chief, Division of Nursing Resources, United States Public Health Service.] (1953). **Communicable disease control. A volume for the health officer and public health nurse.** pp. xvii + 500. London: Macmillan & Co., Ltd. 3rd Edit. 45s. 6d. **3962**

This book, concerned with the control and nursing of diseases transmissible from man to man deals, under the appropriate subjects, with transmission from animals to man of TB., brucellosis, Q fever, equine encephalitis, and trichinosis. There is, however, no mention of domestic animals as a source of itch and ringworm.—R.M.

Dobberstein, J. & Koch, T. (1953). Lehrbuch der vergleichenden Anatomie der Haustiere. Band I. Knochenlehre und Muskulatur. **[Comparative anatomy of the domestic animals. Vol. I. Bones and muscles.]** pp. viii + 180. Leipzig: S. Hirzel. DM 10.80. **3963**

In post-war Germany the need for textbooks was acute, and so far as anatomy was concerned teachers in the various schools prepared short textbooks to supplement instruction in the classroom. This book is one of that kind and should succeed very well. The established textbooks have been drawn upon extensively, especially for illustrations. As this is not intended as a reference book no references are given. The whole emphasis is on comparative veterinary anatomy, no one species being used as a type. A very good feature is a series of tables of groups of muscles giving origins, insertions, nerve supplies and actions. The illustrations are good and at the price the book must seem a very good bargain for the veterinary student during his anatomy course. It is to be assumed that volumes on the other systems are to follow.—R. N. Smith.

Davidson, J. N. [Gardiner Professor of Physiological Chemistry in the University of Glasgow.] (1953). **The biochemistry of the nucleic acids.** pp. viii + 200. New York: John Wiley & Sons, Inc.; London: Methuen & Co., Ltd. 2nd Edit. 10s. 6d. **3964**

This most useful book of small size presents a compact source of recent information on the nucleic acids. It is written for students of biochemistry, for chemists and for biologists who have interests in this field. The subject matter arranged in 15 chapters has been brought up to date with the introduction of much new material, especially in the chapters dealing with the hydrolysis products of the nucleic acids; the structure and properties of the polynucleotides; the cell nucleus; and the biosynthesis of the nucleic acids. Other matters covered include, for example, the nucleic acid content of tissues; the metabolism and biological activity of the nucleic acids; and the nucleic acids in micro-organisms. Each chapter is provided with selected references including those of review articles. Organic formulae illustrate the structure of compounds throughout the text. There are numerous tables, diagrams and four plates, and an index.—E. Marsh Jones.

Schmidt, J., v. Patow, C. & Kliesch, J. (1953). Züchtung, Ernährung und Haltung der landwirtschaftlichen Haustiere. Allgemeiner Teil. Besonderer Teil. **[Breeding, nutrition and husbandry of farm animals. Part I. General. Part II. Special.]** pp. viii + 352 & pp. viii + 400. Berlin & Hamburg: Paul Parey [Medium 8vo.] DM 24 & 25. **3965**

This work, which is intended for German students of agriculture and veterinary medicine, consists of two volumes. Volume I incorporates chapters on the basic principles of breeding —heredity and reproduction—followed by chapters on general nutrition and husbandry. Volume II consists of six sections, dealing with breeding, feeding and rearing of cattle, pigs, horses, sheep, goats and fowls respectively,

special emphasis being given to German conditions and breeds. Both volumes are very well produced and profusely illustrated.—E.G.

KOCH, W. (1954). Lehrbuch der Allgemeinen Tierzucht. **[Textbook of animal breeding and husbandry.]** pp. vii + 312. Stuttgart: Ferdinand Enke. DM 26. **3966**

This textbook is based on lectures given during the last 30 years at Munich University where the author is professor of animal breeding and husbandry. It contains chapters on the history of domestic animals and their sociological relationship with man, natural conditions favourable for breeding, geographical statistics, reproduction, growth, heredity, determination and heredity of sex, influence of environment on inherited characteristics, domestication and its phenomena, productivity, breeds and varieties, appraisal of sires and dams, various techniques of marking, artificial insemination, transplantation of ova, castration, influence of drugs on productivity, etc. The language is straightforward and simple. References are listed after each chapter and there is a glossary and an index. There are 76 illustrations in the text and 31 tables. Paper, print and binding are of good quality.—E.G.

WHITEHEAD, G. K. (1953). **The ancient white cattle of Britain and their descendants.** pp. 174. London: Faber & Faber Ltd. 63s. **3967**

This book gives a general account of the wild white cattle of Great Britain, tracing their lineage and describing the herds now in existence. One possible ancestor, the Aurochs (*Bos primigenius*) is dealt with in some detail. There is a bibliography.—A.S.

WHITNEY, L. F. (1954). **The complete book of cat care.** pp. 264. London: Victor Gollancz, Ltd. 18s. **3968**

W. describes in popular language not only the management, nutrition and breeding of cats, but also genetics, anaesthesia, surgery, pharmacology, therapeutics, and toxicology. The book begins with a diagnostic table which the author hopes will enable owners to identify common diseases of cats. He advocates the use by untrained persons of such procedures as the administration of drugs by stomach tube, and minor surgery. In general there is a wealth of detail—not all of which is relevant—which should prove useful to the intelligent owner of cats.—R.M.

BOOKS RECEIVED

[Notice of recently received books in this list dose not preclude review.]

BRIMLEY, R. C. & BARRETT, F. C. (1954). **Practical chromatography.** pp. 128. London: Chapman & Hall, Ltd. 2nd Impression. 15s.

CLAY, H. H. (1954). **The Public Health Inspector's handbook. (Formerly the Sanitary Inspector's handbook.) A manual for Public Health Officers.** pp. xx + 608. London: H. K. Lewis & Co. Ltd. 8th Edit., revised and enlarged. 30s.

FUNDER, S. (1953). **Practical mycology. Manual for identification of fungi.** pp. 145. Oslo: Brøggers Boktr. Forlag. 39s. [In English.]

GRAHAM, R. P. (1954). **The mating and whelping of dogs.** pp. 162. London: Popular Dogs Publishing Co., Ltd. 7s. 6d.

HALL, C. E. (1953). **Introduction to electron microscopy.** pp. ix + 451. New York & London: McGraw-Hill Publishing Co. 64s. 6d.

HEUNERT, H.-H. (1953). Praxis der Mikrophotographie. **[Practical photomicrography.]** pp. 94. Berlin, Göttingen & Heidelberg: Springer-Verlag. DM 15.60.

LACEY, O. L. (1953). **Statistical methods in experimentation: an introduction.** pp. xi + 249. New York & London: The Macmillan Co. $4.50. 31s. 6d.

LEJEUNE, F. (1954). Deutsch-Englisches, Englisch-Deutsches Wörterbuch für Ärzte, in zwei Bänden. Band I. Deutsch-Englisch. **[German-English English-German dictionary for physicians in two volumes. Vol. I. German-English.]** pp. xxi + 1348. Stuttgart: Georg Thieme. DM 33.

LEJEUNE, F. & BUNJES, W. E. (1953). Deutsch-Englisches, Englisch-Deutsches Wörterbuch für Ärzte, in zwei Bänden. Band II. Englisch-Deutsch. **[German-English English-German dictionary for physicians in two volumes. Vol. II. English-German.]** pp. xxxx + 1737. Stuttgart: Georg Thieme. DM 58.50.

WOOLDRIDGE, W. R. (1954). **Farm animals in health and disease.** pp. xvi + 463. London: Crosby Lockwood & Son, Ltd. 30s.

ANON. (1953). **The fundamentals of radiography.** pp. 100. Rochester, N.Y.: Medical Division, Eastman Kodak Co. (London: Kodak Ltd.) 8th Edit.

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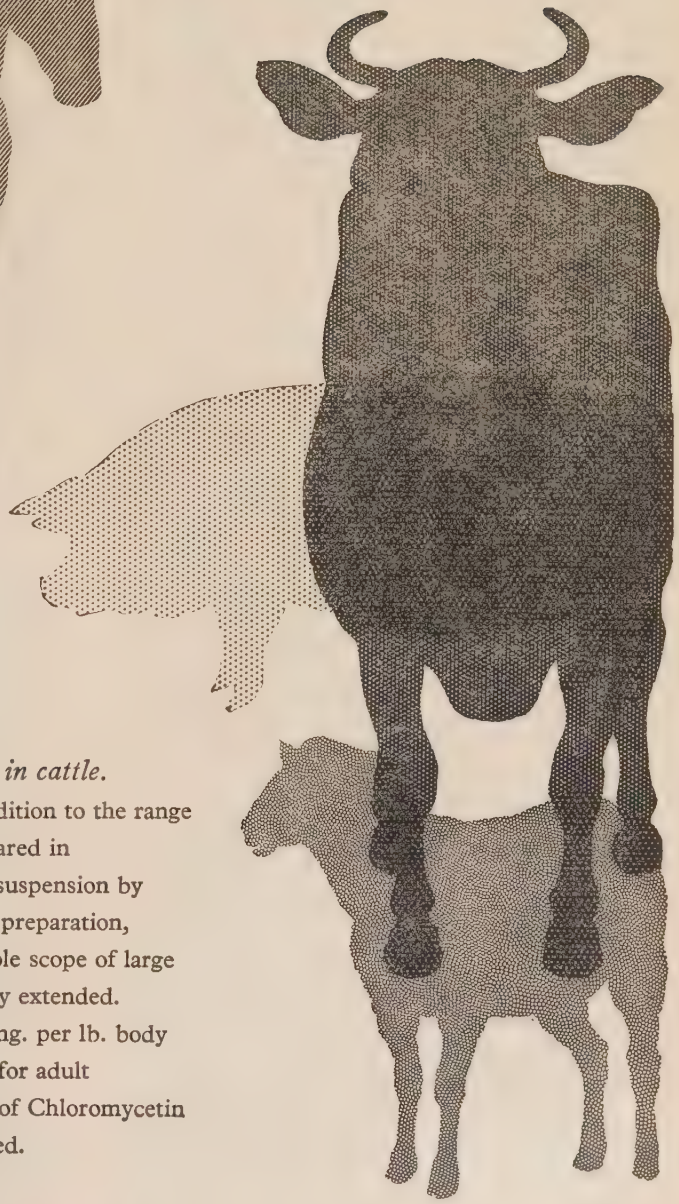

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ERRATA

V.B. **24**, abst 3458. The abstract proved to be misleading. It will be replaced by abst. 53 in volume **25** (1955).

V.B. **24** abst. 3755. The author's name should read RICKARD-BELL.

V.B. **24**, abst. 3895. The paging should read 568-577.

ABBREVIATIONS OF NAMES OF PUBLICATIONS

The abbreviations used in *Index Veterinarius* and *The Veterinary Bulletin* are those of the *World List of Scientific Periodicals* published in the years 1900-1950, 3rd Edit. (1952). London : Butterworths Scientific Publications.

List of Abbreviations

A.I. — artificial insemination
ant. — anterior
A.P.F. — animal protein factor
approx. — approximately
aq. — aqueous
av. — average

B.A.L. — British anti Lewisite (2,3 dimercaptopropanol)
b.p. — boiling point

c.f. — complement fixation
clin. — clinical
coeff. — coefficient
conc. — concentration
c.s.f. — cerebrospinal fluid

diam. — diameter
dil. — dilute(d)
diln. — dilution

E.I.A. — equine infectious anaemia
equiv. — equivalent

ft. — foot (feet) [measurement only]

Hb. — haemoglobin
H.I. — haemagglutination inhibition

inj. — injection(s)
insol. — insoluble
Inst. (inst) — Institute
i/m — intramuscular(ly)
i/p — intraperitoneal(ly)
i/v — intravenous(ly)
i/d — intradermal(ly)

lab. — laboratory (-ories)

max. — maximum (-al)

N.D.V. — Newcastle disease virus
N.D. — Newcastle disease

r.b.c. — red blood corpuscles
r.e.s. — reticuloendothelial system
R.H. — relative humidity

s/c — subcutaneous(ly)
soln. — solution
suppl. — supplement(s) (-ary)
std. — standard

temp. — temperature
therap. — therapeutic

U.V. — ultra-violet

vet. — veterinary
vol. — volume

w.b.c. — white blood corpuscles
wt. — weight

/ — per (*e.g.* wt./vol.; mg./lb. body wt.)

The Executive Council of the Commonwealth Agricultural Bureaux is a signatory to the Fair Copying Declaration, details of which can be obtained from the Royal Society, Burlington House, London, W.1.

Bulletins on disease subjects written for farmers and "popular" articles of a similar nature are not included in the *Veterinary Bulletin*. Those of a sufficiently important nature are, however, included in *Index Veterinarius*; so also are certain review articles, presidential addresses, congress proceedings, etc., where the title conveys as much information as could be given in an abstract of a few lines. For information of this nature, readers of the *Veterinary Bulletin* are referred to *Index Veterinarius,* where titles of all publications indexed by the bureau are fully cross-referenced.

A list of annotations and reviews, classified according to subject, is now given in *Index Veterinarius,* being inserted at the end of each number. Such papers will not necessarily be dealt with in the *Veterinary Bulletin.*

The Editor will be glad to receive publications relating to Veterinary Science and cognate subjects in order that they may be dealt with in the *Veterinary Bulletin.*

Reports of Departments, Special Reports, reprints, etc., etc., should be sent as soon as they are issued.

Books for Review.

The Editor will be glad to receive books for review in the *Veterinary Bulletin.*